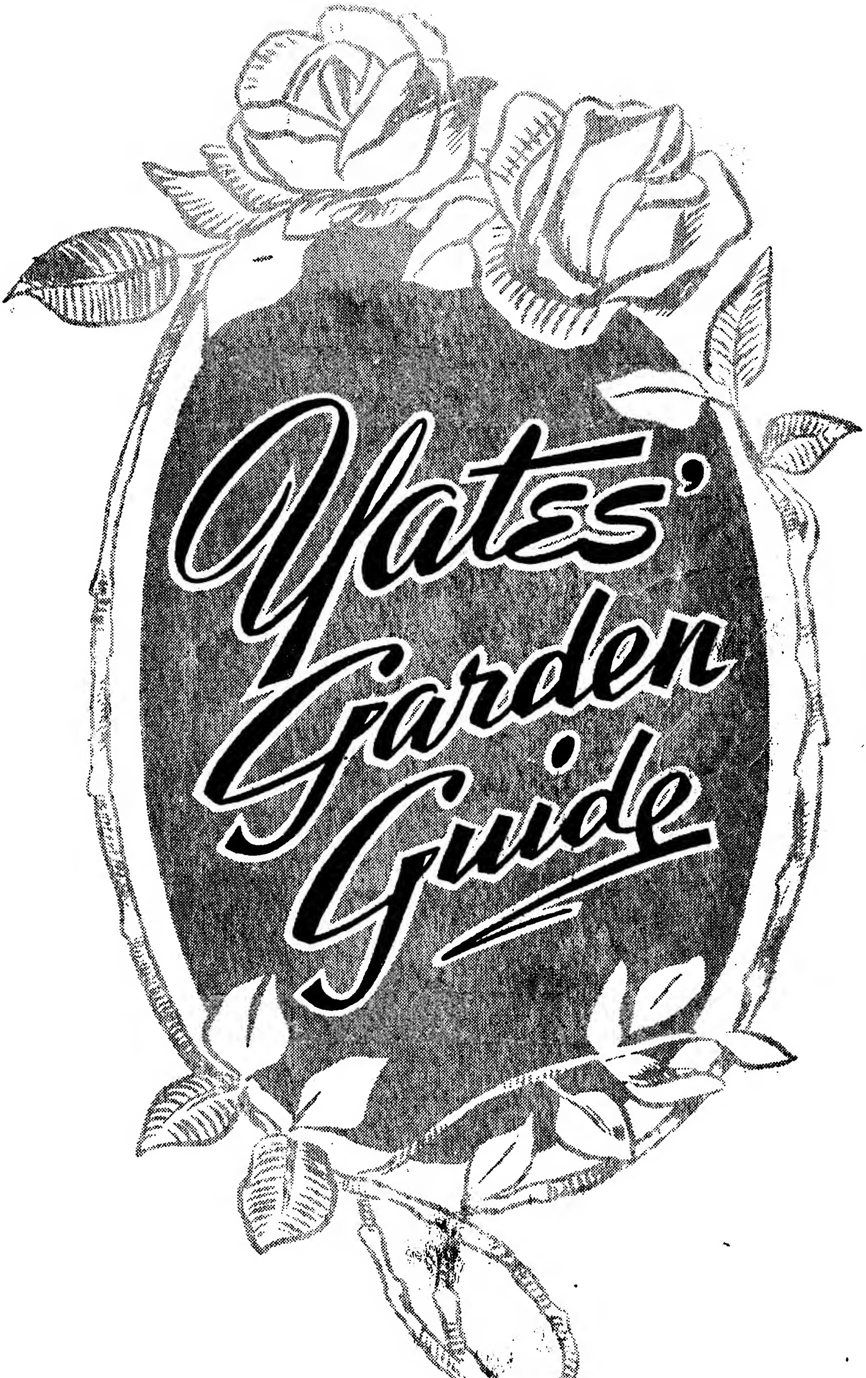

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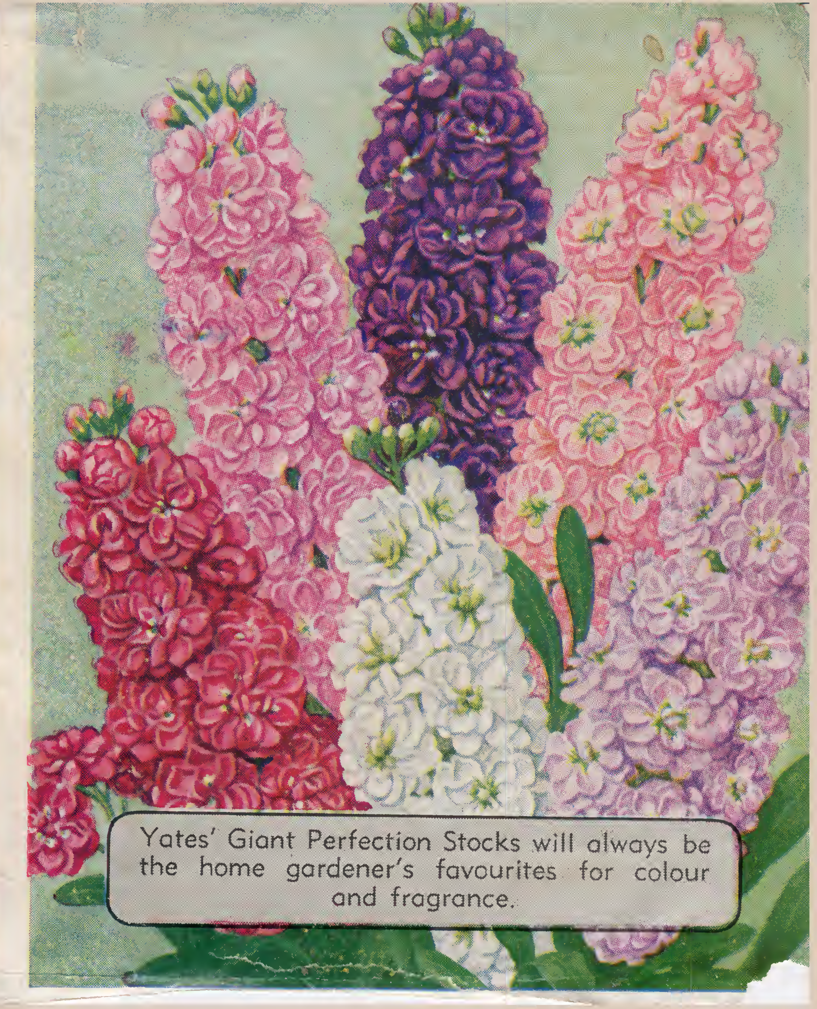

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exceed one million copies.

# YATES' GARDEN GUIDE

## For the Home Gardener

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# *Foreword*

MOST people very quickly grasp the essentials of making things grow, and few folk, once they take up gardening, fail to gain some understanding of the needs of plants. Nearly all of us have a desire to create out of the soil that which is useful or beautiful, and worthy of our effort.

No other hobby provides such satisfying recreation, such amazing results for the amount of work done as gardening. One well-grown Sweet Pea plant may provide two or three dozen blooms, or a Bean plant will yield up to 1½ lbs. of fresh, green pods. This abundance springs from one tiny seed, occupying a very small space of ground. Multiply this by even ten times, and it is easy to see that for very little space and labour, the results are tremendous.

Much of what is written about gardening concerns, primarily, the commercial grower, or keen exhibitor. With them their very livelihood depends on ultimate success, and they must be very exact in their requirements. Home gardeners, however, who want "a good show of flowers," or a regular supply of vegetables, can have them without having to delve too deeply into the more scientific side of Horticulture and Agriculture. This does not mean, of course, that we can ignore the commonsense principles of gardening, neither should we think that it is only a matter of sowing the seeds, or planting seedlings. That is only the start, but as long as proven methods are adhered to fairly closely, excellent results should be obtained.

What might first seem very technical operations will be later taken as a matter of course. The experience of others, added to what has already been learnt, is invaluable, and local experience must always be considered. Many beginners owe much of their success to the fact that they keep a Garden Diary, wherein they note the times of sowing, of flowering, or bearing, and any other details they observe in the growing of a crop. Such a record becomes invaluable as each season passes.

There is a similarity between building a garden and a home. A house may look all right even though certain essential timbers be missing, but whether it would continue to withstand all sorts of bad weather is a very different matter. A garden is the same; the soil may seem fertile, but if certain elements are lacking, such as humus, or plant food, plants may thrive for a time, but will soon succumb to unfavourable conditions or remain stunted.

Some newcomers to gardening are soon discouraged because they attempt too much. Our example of the Sweet Pea and Bean plants will serve here. These same plants, if poorly grown, may yield only a fraction of what they are capable. It is obvious then that with poor cultivation a much greater number of plants would have to be looked after and a larger area prepared to obtain a required quantity of flowers or vegetables; it is far better to grow a few plants well, rather than a large number poorly cared for. For example, if there is only a limited amount of manure at your disposal, it would be better to use this generously in a small area rather than spread it thinly over a wide space which, in the long run, might yield a smaller harvest. Start with a small area and, with it, master the first principles of gardening. Bear in mind that this Guide has been mainly compiled for the temperate coastal and average climates, such as where oranges thrive; sowing times and particular recommendations should be varied to suit very hot or very cold districts.

The purpose of this book is to help the home gardener along the road to successful gardening, without becoming involved in a lot of unnecessary work, expense and disappointment. That is why it has been written in a non-technical way, and, we hope, in a style to make it a joy to read.

Arthur Yates & Co Pty Ltd

# CONTENTS.

Page

Foreword .. .. .. .. .. .. .. .. .. .. .. 2

Chapter

1. Starting a Garden .. .. .. .. .. .. .. 6
2. Layout .. .. .. .. .. .. .. .. .. .. 12
3. Soil Building .. .. .. .. .. .. .. .. .. 17
4. Manuring and Fertilising .. .. .. .. .. .. 24
5. Raising Seedlings .. .. .. .. .. .. .. 29
6. The Vegetable Garden .. .. .. .. .. .. 36
7. The Flower Garden .. .. .. .. .. .. .. 79
8. Flowering Bulbs .. .. .. .. .. 143 and 172
9. Roses .. .. .. .. .. .. .. .. .. .. 160
10. Lawns .. .. .. .. .. .. .. .. .. .. 166
11. Some Garden Highlights .. .. .. .. .. .. 173
12. Shrubs, Ornamental Trees, Climbers and some Perennial and Herbaceous Flowering Plants .. 183
13. Fruit Trees and Fruiting Plants .. .. .. .. 193
14. Pests, Diseases and Remedies .. .. .. .. .. 203
15. Month by Month in the Garden .. .. .. .. 215
16. Varieties for the Home Garden .. .. .. .. 230

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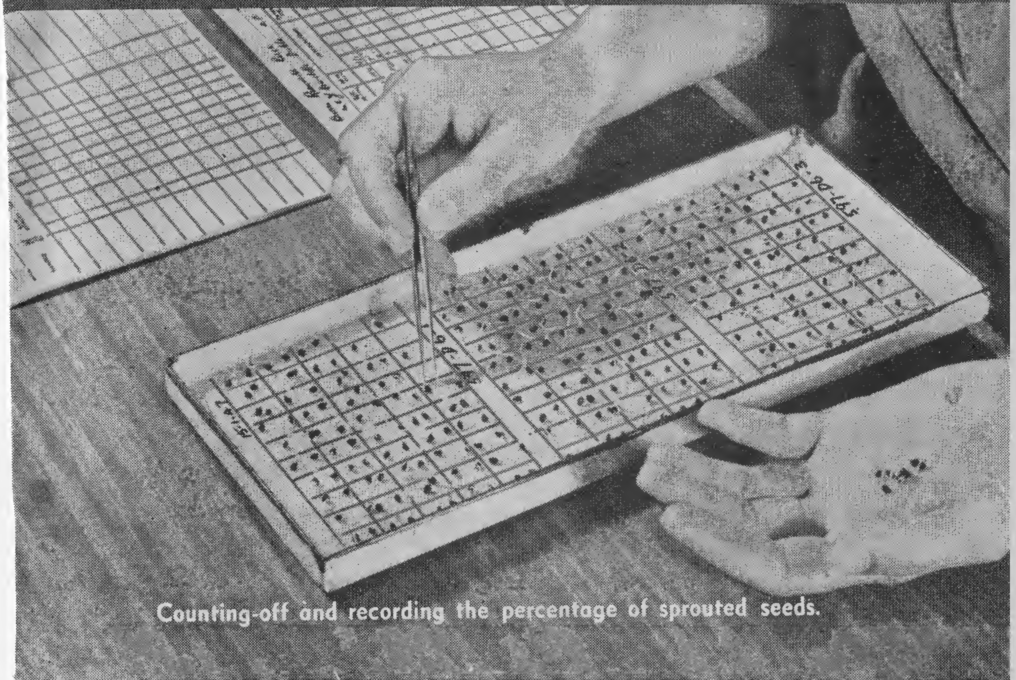
General Index .. .. .. .. .. .. .. .. 254

# Good Gardens must begin with Good Seeds

To first make sure that seeds GROW, about 20,000 seed germination tests are made each year in this up-to-date laboratory of Arthur Yates & Co. Pty. Ltd.



Counting-off and recording the percentage of sprouted seeds.

## CHAPTER 1.

# STARTING A GARDEN.

**MOST of us have to "make up" our soil and in very few instances indeed is it possible to merely dig the ground and plant successful crops.**

**Soil is not brought into good growing condition by any one particular operation, but rather because of the attention to small details, each of which is complementary to the other.**

### THE MAKE UP OF PLANTS.

Before the needs of plants are considered it is necessary to just take a glimpse of why water, fertilisers and minerals are essential. It has been said, "A plant lives standing on its head. Not only are its roots its mouth, but they display an amazing degree of intelligence."

A casual observation of practically any garden plant will show that they have a root, stem, leaf, flowers and seed. The first to emerge from the seed, when germination commences, is the root, for it is the key to the whole of the plant's life. Some grow and feed more or less near the surface, some delve deeply in the form of a tap root, whilst others have to have a combination of both features. In the vegetable garden we have many examples of these differences. For instance, Carrots and Parsnips are tap rooters and have only short fibrous roots. On the other hand, Cabbage and Cauliflower are mainly surface rooters and their active fibrous roots extend for some distance away from the centre of the plant. It can be said that, roughly, the extent of the root system equals that of the foliage. In other words, the active fibrous roots which absorb the necessary elements for the plant's life do not extend much beyond the perimeter of the leaves.

These points serve as a guide to the feeding and watering of garden plants inasmuch as it can be seen how ineffective it would be to place fertiliser for, say Carrots, a foot or so away from the root itself and just as ineffective to distribute the food for a spreading plant close to the stem. Keeping fertilisers within reach of the feeding roots saves the plants considerable energy in searching for extra nourishment, resulting in better and healthier crops.

It is worth noting, too, that roots respond to the law of gravity, and tend to grow downwards as well as outwards. The gardener who indulges in the "nightly sprinkle" of his garden, and fails to give the soil a good soaking at regular periods when there is no rain, encourages the roots to break that law and turn towards the surface only to find that the moisture they seek has disappeared. Roots "drawn" to the surface in this way are easily cut or damaged during surface cultivation.

Finally, the roots of a plant have another important function, and that is to anchor the plant to its home—the soil.

*Celery is known as a poor foraging plant, as this small root system shows, but even this extends to the perimeter of the foliage.*

This, of course, is not the whole story by any means because the leaves also play an important part in converting the necessary elements from the air into the stems, leaves, flowers, and seed. Their work is complementary to that of the roots but apart from the fact of mentioning here the importance of sunlight for practically all vegetables, it is not necessary to delve any deeper into the chemistry of plant life.

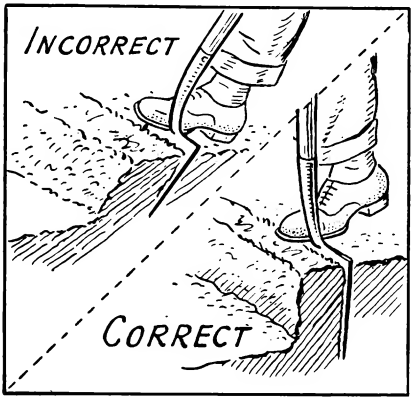
## SOILS.

As with aspect, the home gardener has to accept whatever soil is available on the site he has chosen for his home. It does not matter very greatly whether it is alluvial, sandstone, ironstone, or granite formation, it has to be brought into a fertile condition.

In recent years there has been a great deal of controversy as to the benefits of deep cultivation against surface cultivation and some very good reasons for the latter have been put forward.

It is undoubtedly true that surface rooting plants are not benefited by the raising of the sub-soil to the surface, but deeper rooting plants certainly do need deep cultivation, as we have already indicated in the notes on plant formation.

Topsoil is the term applied to the layer of soil in which much plant life thrives. It varies in depth (from about 6-9 inches or more) according to its location. It is in this stratum of soil that the beneficial bacteria live and work to help make the content of the soil available to the feeding roots. The application of fertilisers, rotted compost (humus), lime and water contributes to the proper working of this valuable bacteria.



*In digging, the spade must be kept vertical.*

Later we shall deal with the correct digging of this soil and the treatment of the subsoil.

Subsoil is complementary to the topsoil. It contains much of the mineral forms of plant food and less of the organic forms because the bacteria cannot work owing to the absence of air. It is a storehouse of moisture. The subsoil nearest the top soil is in gradual process of improvement and proper cultivation increases the depth of the top soil because the organic components commence to merge with it.

Now we must consider what practical steps are to be taken to bring the land into good growing condition.

## DIGGING.

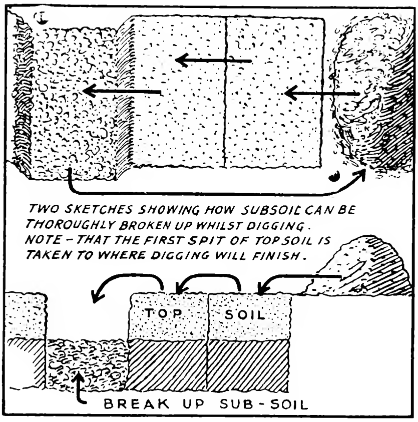
First of all let us assume that the ground is virgin. Only in exceptional land would it be possible to grow successful crops without first digging it deeply, fallowing it and then adding lime, compost and fertilisers. This also applies to land that has been previously worked but neglected for some years.

Digging then comes under two categories; the turning over of new land for subsequent fallowing by frost, wind, sun and rain and the shallow digging that precedes the planting of a crop in well cultivated ground. Providing the soil has been well dug in its initial stages only light digging with a fork is necessary and it is not a good plan at this time to incorporate the weeds with the soil, or, for that matter, any green stuff, as it is with "long term" digging.

One good reason is that bacteria which would be working for the plants is diverted to reducing the green stuff into humus.

The art of digging, if it can be called such, is brought into full play, however, when the loam has to be deeply worked as indicated earlier.

The soil should be dug to the complete depth of the topsoil. A little clay showing at the bottom edge of the spade will show that the subsoil has been reached. Any compost "trash" or manure that it is desirable to incorporate in the soil can be dug in at this time. To do the job well it is advisable to open a shallow and narrow trench (about a spade depth and a spade width). If working on a slope start at the top and work downwards along the line where the digging is to commence. Take the soil so removed, to the back line where the digging is to finish, and leave it for filling in the last "furrow" left by the spade work. Insert the spade vertically in the left-hand corner (for right-handed workers) about 4 to 6 inches back from the digging line; press down with the foot as far as possible; then lift out the spade full of soil and turn it over into the prepared shallow trench or furrow. This leaves a new furrow for the next line of spade work to fill in, and so on. The soil nearest to the blade should be left uppermost. A slight toss of the spade as this is done loosens the soil and gives a slight spread. The soil is "tight" when the spade is inserted and is left loose when turned over. All surface material, whether growing in the soil or spread before digging, is thus turned under to rot and form humus, and the loose condition of the soil allows air to penetrate. Work from side to side, each spade cut meeting the last one made.


TWO SKETCHES SHOWING HOW SUBSOIL CAN BE THOROUGHLY BROKEN UP WHILST DIGGING.
NOTE - THAT THE FIRST SPIT OF TOPSOIL IS TAKEN TO WHERE DIGGING WILL FINISH.
TOP SOIL
BREAK UP SUB-SOIL

*The above illustration is self-explanatory and simplifies the matter of shallow trenching. However, an even easier method is illustrated on the next page.*

Where large areas have to be dug, the spade method tends to become tiring and is perhaps the most back-breaking method of all. The fork-hoe (or hoe-fork) is quicker and after practice is far less tiring. With this method the gardener stands facing the ground he is to dig, lifts the fork above the head and brings it down into the soil to form the first "spit." It is then necessary to stand on the ground that has been dug and as he progresses the soil is drawn towards him. As with the spade, it is necessary to work to a "face" and the easiest method to do this is to shovel out the soil, at the starting point, the width of the bed and heap it up ready to transfer to the other end as indicated in our next section on trenching.

**Should the soil be wet or dry?** Wet soil should be left strictly alone and allowed to dry out before any attempt is made to dig it. The ideal condition is when it is just moist (dry soil is not only difficult, but creates a lot of dust that is blown about the garden). If water is available the best plan is to give it a thorough soaking one day and test it the next. By that time it should be in fair condition for digging.

## TRENCHING.

Where the easily-worked topsoil shows any lack of depth, trenching is essential. As a matter of fact, the garden will be better when it is all trenched except, perhaps, in some deep sandy or alluvial soils, but at first the work can be confined to the areas where it is most required. This would apply particularly in the vegetable garden, although some of the deeper rooting flowers, such as Sweet Peas, Delphiniums, etc., will be greatly benefited from being grown in trenched land. Trenching is really an elaboration of deep digging. The idea is to thoroughly turn over and loosen up the topsoil and leave the subsoil (down under where it belongs) in a loosened and aerated condition.

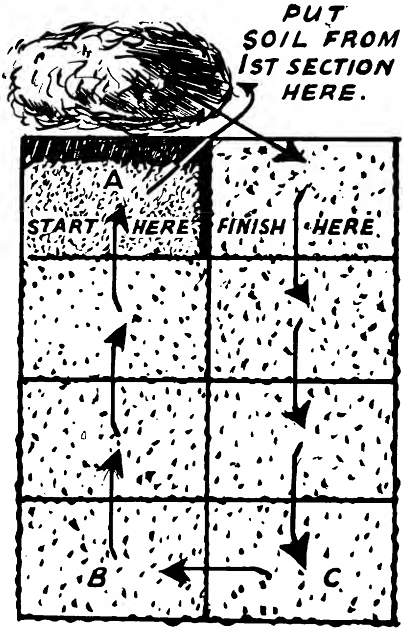
To commence the work, take a strip of the land 3 feet wide and the full length of the area to be trenched, and dig out and fill into a barrow all the topsoil (leaving the clayish subsoil). If there is enough such topsoil, take down to 1 foot deep. The soil so removed should be barrowed to a heap adjacent to where the trenching is to finish. Then get into the trench so opened and, with a strong fork or mattock, if necessary thoroughly loosen up the subsoil as deeply as possible up to a full fork or spade deep. Where the subsoil is fairly loose, it may be actually turned over in this operation. The effect of this thorough loosening is to allow the access of air-moisture and could be described as a "subsoil fallow." The subsoil loosened and turned should remain as subsoil, and should not be brought to the surface of the natural soil level nor mixed with the topsoil. Then take another trench 3 feet wide from the line of the first one, and turn the topsoil into the first trench on top of the thoroughly loosened subsoil. This will leave the level of the surface considerably higher than it originally was, and this means that air has filled in the extra space taken which is just what is required. Continue thus to the end of the plot, and then use the topsoil first removed to fill in the last trench. See that all the ground is worked and that no ridges or bars of unbroken land are left.

Where only narrow beds, such as might border a lawn, are to be trenched or where ground is to be prepared for Sweet Peas, it will not be necessary to carry the soil from one end of the job to the other, but the topsoil will, in this instance, be thrown out to the side of the strip, the subsoil broken up and the topsoil returned.

Other methods of simple or "false trenching" are indicated by the illustrations on this and the previous page.

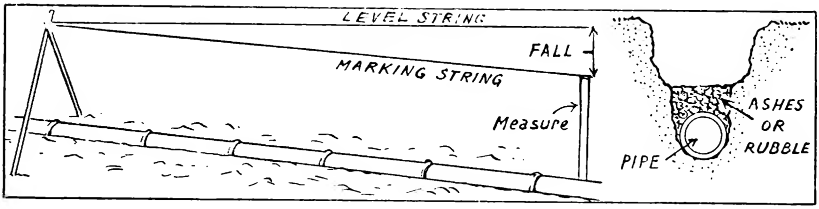
## DRAINING.

This will not concern most home gardeners but drainage does become a problem when waterlogging is really bad. To test whether soil is well or badly drained dig holes 2 feet deep and watch results after heavy rain. If water still remains in the bottom of these holes, say, for 24 hours after rain has ceased, it can be said to be badly drained and might consequently be sour because proper aeration and soil warmth are seriously checked.



*By adopting this method of trenching no barrowing of soil is necessary. The area to be dug is first halved down its length. Starting at A the soil is thrown out and digging proceeds until B is reached. Each time the subsoil is broken up, as described on page 8. Soil from C is then transferred to B and the gardener is then digging with his back to the starting point. The soil that was first thrown out fills the last portion dug.*

It is impossible in this small space to adequately treat so important a subject, but experience shows that where agricultural drain pipes (unglazed) are procurable, they are much the best, and most economical in the end. We recommend that from two to three inch pipes should be used (larger ones do not have a sufficient flow to keep them flushed, and gradually become choked), and that they be laid in trenches forty to fifty inches deep and forty feet apart. Set in this way, an acre will require 1,000 pipes. The pipes can be laid closely, end to end, and the earth filled in the trenches and



*Pipe laying is simplified if a garden line set to correct fall (about 1 ft. in 100) is used. Sectioned view shows placement of ashes or rubble for drainage in heavy soil.*

rammed. It is found that the water finds ample means of ingress through the soil and crevices between the pipes. Where main drains are used the main pipes should be four or five inches, and the subsidiary draining pipes connecting with them two inches, or the main drains may be dispensed with and two-inch or three-inch pipes used throughout, as suggested above.

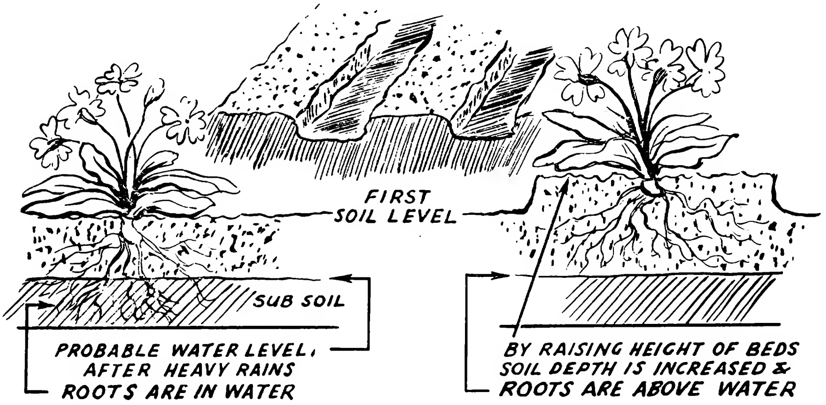
Where pipes are not procurable, rubble drains may be made by filling in the bottom of the trenches with rough stone and covering with flat stones. Another method is to fill in the trench with rough brushwood, but this soon rots and the labour is lost. We strongly advocate the use of pipes, even if the first cost is high; properly laid they will last for many years, and will improve instead of deteriorating.

In laying out drains the main thing is to tap the wettest spots, and lead them to the lowest point by the shortest way. Circuitous drains are a mistake. Each drain should be laid on one grade all through, or at any rate, the slope should not be lessened towards the outfall. In pipe drains a fall of one in one hundred is necessary, but it is advisable to give a greater fall where possible. Where the fall is very slight, three inch pipes should be used.

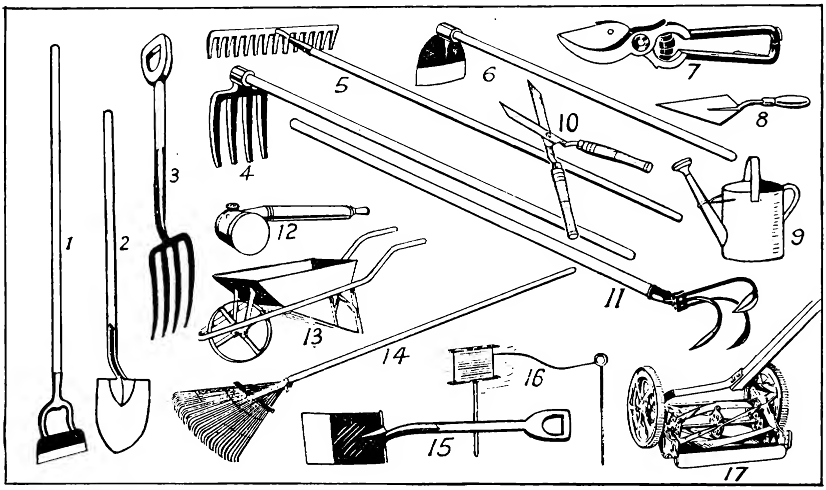
Minor drainage problems can often be overcome by building garden beds 6 inches or so higher than the paths. Soil is kept back by bordering them with bricks, concrete or timber.

## NECESSARY TOOLS.

In purchasing garden tools it is never economical to make a small saving on a cheaper article. Nothing will show its faults more quickly than a badly made or inferior gardening implement, which has to withstand quite a deal of rough treatment.


FIRST SOIL LEVEL
SUB SOIL
PROBABLE WATER LEVEL, AFTER HEAVY RAINS ROOTS ARE IN WATER
BY RAISING HEIGHT OF BEDS SOIL DEPTH IS INCREASED & ROOTS ARE ABOVE WATER

*Not only does raising the height of garden beds increase the amount of good soil in which the roots can forage but as the illustration shows, often overcomes minor drainage problems.*



The tools illustrated on this page will enable the gardener to do most of the work found necessary in an average sized garden.

The Dutch hoe (1) is useful for scraping weeds from level dirt paths and also for "undercutting" weeds in garden beds.

Once digging with a long-handled shovel (2) is mastered much back-breaking work previously done with a spade will be saved.

The hand fork (3) is the ideal digging instrument for well-worked soil.

The hoe fork (4)—sometimes called fork hoe or vine hoe—is a splendid tool for breaking new ground or digging large areas of worked ground in the vegetable garden.

The bricklayer's trowel (8) will enable transplanting to be done more thoroughly and quickly.

The cultivator (11) enables soil stirring and weed destruction in garden beds to be done thoroughly and quickly.

A good wheelbarrow (13) is necessary, as is also a pair of secateurs (7) of reliable make. Then, of course, an atomiser (12) will be used for spraying insects, and a watering can (9) for watering seedlings, pot plants, etc.

A chipping hoe (6) is the ideal instrument for chipping down large areas of grass and weeds for turning into the soil.

To complete the collection there should be a reliable lawnmower (17) and a good garden line (16) as pictured here will enable planting and other jobs to be done more neatly and with less trouble. A spade (15) has 101 uses besides digging and is useful for shaping beds, etc. An inferior article, however, will only prove a nuisance. A bamboo lawn rake (14) enables rubbish, leaves, etc., to be swept off the lawn cleanly without damage to the grass. Never try to save a few pence in buying grass shears (10) because here again the cheaper kinds will only prove a liability rather than an asset. Finally a good rake (5) should be always handy.

As the gardener progresses he may wish to add more specialised tools to his collection but those described here will make a worthwhile beginning.

*Tilling the soil is the most essential of all human activities.*

## CHAPTER 2.

# LAYOUT.

**Many so called problems in gardening arise because in the first instance little attention was paid to layout. Whether it is a new site or an old established garden, there should be some attempt to plan it.**

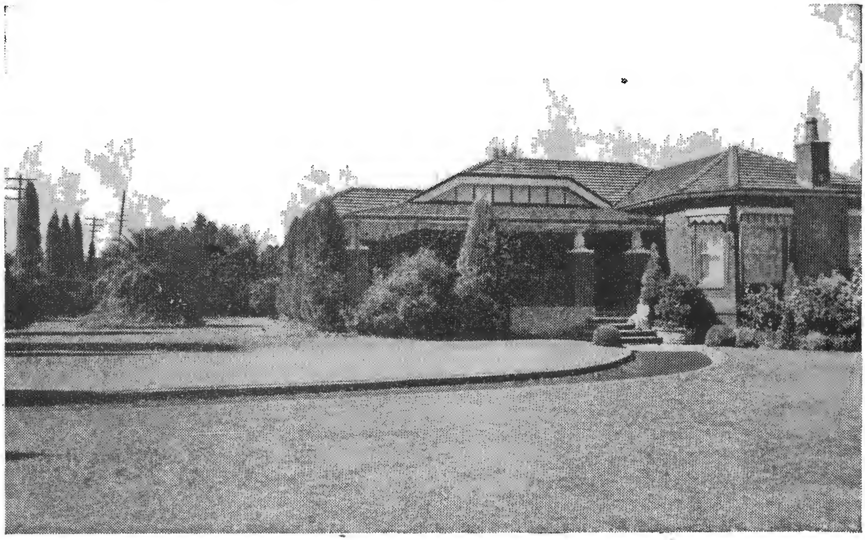
### WHAT IS NECESSARY?

- Avoid crowding.
- Do not divide lawns with centre beds and shrubs but give them an appearance of size by confining these to the boundaries.
- "Tie" the house to the ground by growing suitable plants around the base.
- Avoid too much geometrical formality.
- Keep pleasant views but screen an unsightly outlook, fence, etc.

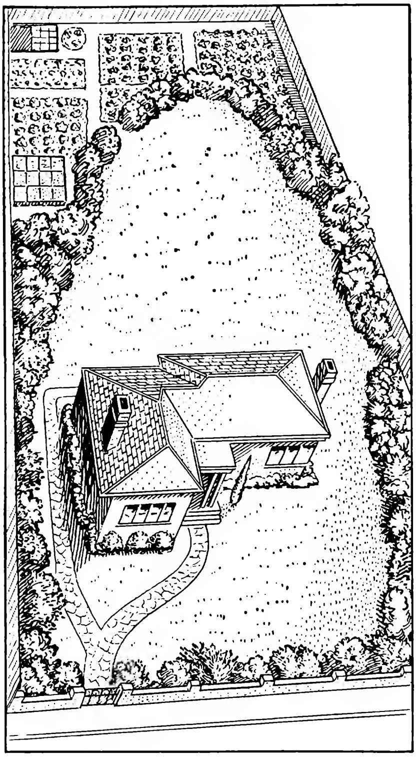
Some elaboration of these points is now necessary but the intending gardener can learn much by noting the shrubs and flowering annuals that are growing in other gardens, parks, and such places, finding out, if possible their names. He should consult his Seed and Plant Catalogues about the height to which they grow, whether they are evergreen and any other information that can be gleaned. See Chapter 12.

When shrubs and seedlings are small it may seem impossible for them to ever fill the spaces if planted at the distances usually advised and there is a tendency to over-crowd. In the average building block there is usually room for one row of shrubs only (fronted by a border for the flowering annuals and other plants) and, except in the instances later mentioned, choosing those not exceeding 8 feet high. There are many others, however, that grow no more than four or five feet high and these must be considered where taller shrubs are likely to throw too much shade over borders and lawn.

Many an otherwise good lawn is spoilt through various island beds cut into it and while these might be



*A garden layout in which symmetry is combined with informality. Apart from the top left-hand corner, these lawns were not broken by any island beds.*



*A simple layout for a small area. The vegetable and nursery garden is screened by shubbery.*

suitable in extensive areas such as parks and other large gardens, they are very inappropriate in a small area. An unbroken lawn will enhance the appearance of colourful border plants formed around it.

A well planned garden is not separate from the home but is a part of it and should start right from the house itself which then has the appearance of having grown out of it rather than something imposed on it. Sometimes trees and shrubs, far too large for their purpose, are grown close to the house. The aim should be to screen foundation walls and except around porches and such places, keep the height of the plants below window sill level or lower.

Completely geometrical designs were a feature of the Victorian days but are seldom seen now. Borders can have irregular but symmetrical lines and, where practical, paths can curve.

A pleasant view may be further enhanced if it is seen through an archway, of climbing plants or Roses, and, at the same time, there are numerous shrubs and other plants which will help to screen an otherwise unsightly outlook.

It is not possible to deal with more than generalities but in other chapters the special uses of some flowering annuals, shrubs, and climbing plants are dealt with specifically. However, there are some other points which are well worth noting.

Many plants need full sunlight, whilst others prefer semi-shade and even others do well in both positions. Some withstand wind and can be grown in exposed positions. Others need shelter if they are to survive at all and are therefore planted on the sheltered side of the home.

Gardening without the joy of growing each year the many colourful flowering annuals would not have half the interest and the garden would lack what is perhaps its greatest charm So provision must be made for borders that will not be robbed of their goodness by vigorous growing shrubs and hedge plants. If there is a fence to be screened it will often be preferable to grow one of the less rampant climbing plants, such as Thunbergia Gibsoni and Cobaea Scandens. It is quite a simple

*Crazy paving, where practicable, is preferable to concrete.*

matter to make a check on the habit of a shrub or climber before it is planted in any particular position.

## PATHS.

Undoubtedly the most picturesque paths are those constructed with crazy paving or red gravel, but, of course, concrete is the most practical and needs least maintenance.

A good path should be a reasonable width of, say, 3 feet, and so constructed that water can drain away quickly in wet weather. For this purpose they can be very slightly "crowned" in the centre.

Paths, of course, are made to lead somewhere but too many of them are inclined to divide the garden into small segments. Where a path to a fish pool or summer-house is only rarely used it can be made of stepping stones, which are much more attractive. See illustration page 171.

## ROCKERIES.

In suitable places, particularly on banks and sloping ground, rockeries can add a great deal to the appearance of the garden. They should not, however, be built up in the centre of a lawn or open part, but rather merge with the natural formation and plan of the garden. It can be a rocky bank backed by the raised formation of the house or building. It can be part of a scheme incorporating a fish pool and garden retreat, where a pergola is built for climbing Roses or creepers to provide some shady seating on hot Summer days. See Chapter 11.

## VEGETABLE GARDEN.

It is important that this be considered in the plan and if possible it will be confined to the end of the site. In front of it shrubs may be grown, but where these are likely to shut out sunlight, particularly during Winter, they must not exceed a height of, say, 4 feet. They should be of sufficient distance from the beds to prevent robbing the soil, but only large shrubs would create any difficulty here.

Some provision should be made for shelter from the worst winds and often where space is limited this is best done by growing climbing Beans, Peas or Sweet Corn along the exposed sides. However, where space is not a problem, it is better to create a permanent windbreak of Shrubs or Climbers. Briefly, then, the vegetable garden should be screened from the main garden but not so as to shut out sunlight, which is so essential to the plants. Remember the first four or five hours of morning sun are the most beneficial of all. See page 36.

## THE NURSERY GARDEN.

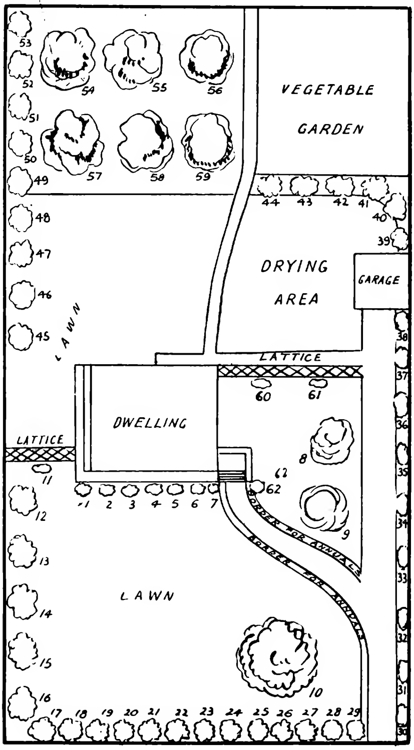
This can be incorporated with the vegetable garden. The gardener needs many accessories which, if in full view, are liable to spoil an otherwise artistic effect. This garden too should receive ample sunlight, although one partially shaded corner is an advantage for raising tender seedlings in Summer.

## GARDEN FURNITURE.

Statuary, sun-dials, and fountains have a place in larger areas but, except where they lend themselves particularly to the plan, are not good practice in small gardens. Most of us have seen where this type of work has been overdone and it is not difficult to visualise whether it would be suitable to our own garden site.

Arbours covered with climbing plants or Roses can be made part of the plan and should lead to a garden seat or summer house. They should appear to have some purpose for being there and not just merely erected in the centre of the garden.

Garden seats are all too few and no doubt this is because most gardens have no suitable spot in which they can be placed. There is nothing more restful than a shady nook and a comfortable seat. Unfortunately, many seats are so constructed as to be far from comfortable and those made with canvas on a frame are perhaps the best.



*This plan is for the average size building block, say 50 feet wide, and with some modifications could be adapted to homes of other designs. The ideal plan is one drawn especially for your own garden, taking into consideration the aspect, slope, views and many other factors. This plan should be suitable where the house is facing North or North-East. The shrubs also listed on this page are selected mainly for growing in that aspect. On the next page is an artist's impression of how this plan should appear after a few years.*

## KEY TO PLAN.

1. Juniper Hibernica
2. Diosma Pulchra
3. Abelia Rupestris
4. Grevillea Rosmarinifolea
5. Clerodendron Ugandense
6. Diosma Pulchra
7. Juniper Hibernica
8. Acer Polymorphum
9. Retinospora Squarrosa
10. Retinospora Obtusa Crippsi
11. Gelsemium Sempervirens (creeper for trellis)
12. Photinia Glabra Robusta
13. Jasminum Fruticans
14. Viburnum Tinus
15. Nerium Monsieur Belaguier
16. Cotoneaster Serotina
17. Ochna Multiflora
18. Abelia Longituba
19. Goldfussia Anisophylla
20. Eriostemon Nerifolia
21. Prunus Sinensis Rosea
22. Rosmarinus Officinalis
23. Veronica Blue Gem
24. Hypericum Patulum Henryi
25. Berberis Thunbergi Atropurpurea
26. Linum Trigynum
27. Spiraea Anthony Waterer
28. Diosma Pulchra
29. Euonymous Ovatus Aurea

**Creepers for Fence**

30. Rhychospermum Jasminoides
31. Bignonia Venusta
32. Thunbergia Laurifolia
33. Jasminum Grandiflora
34. Bignonia Lindleyana
35. Bignonia Cherere
36. Wistaria Sinensis
37. Bignonia Tweediana
38. Rhynchospermum Jasminoides

39. Azalea Splendens
40. Azalea Mortii
41. Azalea Roi de Hollande
42. Azalea Concinna
43. Azalea Eugene Mazel
44. Azalea Souv. de Prince Albert
45. Cotoneaster Franchetti
46. Photinia Glabra Rubens
47. Viburnum Opulus
48. Magnolia Fuscata
49. Ligustrum Lucidum Variegata
50. Callistemon Accuminata
51. Lagerstroemea Eavsi
52. Duranta Plumieri
53. Nerium Dr. Golfin
54. Peach Fruiting
55. Plum Fruiting
56. Apricot Fruiting
57. Lemon
58. Orange
59. Grapefruit
60. Thunbergia Gibsoni
61. Thunbergia Gibsoni
62. Juniper Hibernica

## SHELTER.

A small grove of trees could well be added, even to a small garden. They should be planted closer than is usually advised, say, 6-8 feet apart, and in this way they will provide very quick shade. Lower branches should be trimmed to induce top growth and at the same time to make space available beneath the trees. As they grow and if too crowded, the weaker specimens can be removed.

## THE GARDEN PLAN.

Those gardeners who have built on a new site can create their garden around their home without any of the restrictions experienced by those who have to contend with an established, and probably unplanned area.

In either case it is well worthwhile drawing the garden to scale and filling in the outlines of the house. The positions of the borders, shrubs, vegetable garden and such like can then be marked in. You will be surprised at the picture a plan can give you. In the case of an established garden the permanent features, which it is not intended to alter, must be drawn into the plan and then the new features built up around them. Whilst there is a certain amount of risk in moving large shrubs it can, with care, be successfully accomplished and notes on this subject will be found in Chapter 13.

Few people have the opportunity of choosing just the kind of land they think most suitable for their garden and have to just make the best of the block they have.

Quite a lot can be done with sloping ground and, in fact, with a little imagination this can be made much more attractive than a level block. Some of it can be terraced and each level be the object of a special feature, such as a garden shelter overlooking a rockery and bushhouse and finally, the tree grove.

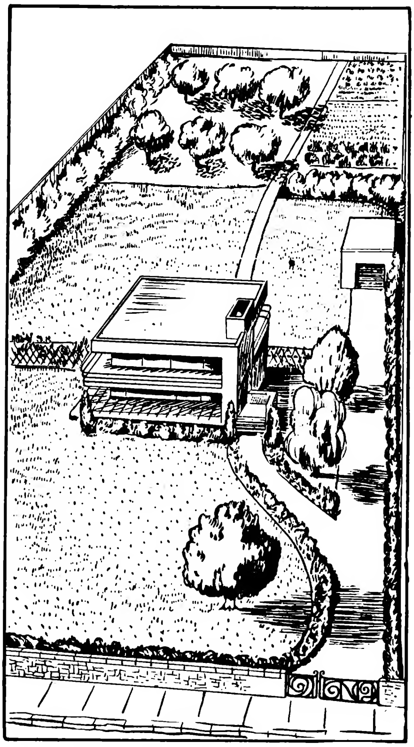
Blocks with only limited depth should have a continuous vista from the back of the house to the rear line of shrubs, etc., and the various features that it is intended to use kept to the sides. But long narrow blocks can be cut off, say, 20 feet from the back fence with borders and shrubbery, behind which will be the sheds and the vegetable garden.

Whilst the informal garden is to be preferred, a pleasing contrast can be effected by using straight, formal beds for cut flowers. These beds will not only provide material for indoor decoration, but there are always sufficient blooms to add interest to the garden.

Curves should not be too pronounced but, in effect, gradual. Sudden bulges might well be used where there are very long lines to break up, but in a small garden serve only to decrease its size even further.

## THE FRONT GARDEN.

If the gardener has gone to the trouble of planting shrubs around foundations in front of his house, laying out borders, erecting supports for climbing plants to disport their colourful blooms, it is a pity to grow a tall front hedge to hide it all.



*An artist's impression of how the plan on page 15 will look when the plants have grown.*

Nowadays such hedges are used only where the outlines of the house are not all that could be desired and there is need to soften them or even hide them. The aim should be to allow the eye to view the whole effect from the street. There are quite a number of low growing plants not exceeding a height of, say, 3 feet, if the garden enthusiast feels he would like a hedge. Roses are also effective but it is best to select all the one variety or to choose from varieties that grow to a similar height. See Hedges, page 189.

*Flowers have a refining and uplifting influence upon all who grow them or behold them.*

## CHAPTER 3.

# SOIL BUILDING.

**It has already been said that the gardener is very fortunate if his soil is in such condition that it merely needs digging to grow a successful crop. Some crops, however, do manage to grow with reasonable results under such conditions, but such treatment is more often the cause of many disappointments and the reason for abandoning gardening. Building up the soil is not done by any secret formula but should be regarded in much the same light as building a house or a shed. In other words, certain components are necessary for it to do its job.**

First of all, most soils need lime and so this is the first step to be taken.

### LIMING—What it does.

Few soils do not benefit from the application of lime but there are some plants which rather resent it and these are dealt with later.

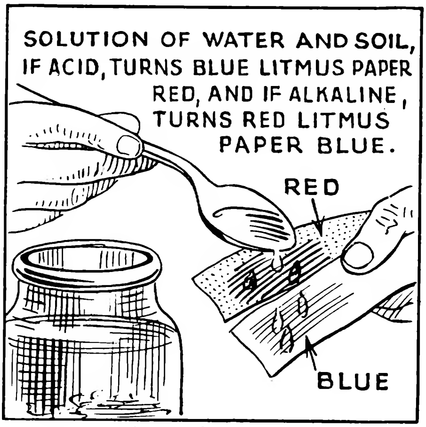
In the main, however, it can be said that, with the exceptions referred to later, your garden soil needs liming.

More importance is being attached nowadays to the application of just the right quantity in contrast to the rather haphazard methods of the past. Soil testing kits, which are reasonably priced and quite simple to use, are available, and the gardener who really wants to be sure, will probably want to obtain one.

In heavy soil the application of lime tends to make it more friable and "lighter," but has the opposite effect with sandy soils, tending to consolidate them, which is all to the good.

Soil is either alkaline or acid in greater or lesser degrees and the function of lime is to correct the over acidity of sour soils, making them more suitable for the valuable soil bacteria to work. It helps to convert organic matter into humus and makes available to the plants, via the bacteria, food which would not otherwise be released. It is never classed as a fertiliser, but as a soil improver and should not be used in conjunction with manures or artificial fertilisers.

It has minor value as a repellant to Snails, Slugs and other insect pests when dusted over the soil surface and, whilst not a substitute for Sulphur or Copper Sprays, helps to check Fungi.


SOLUTION OF WATER AND SOIL, IF ACID, TURNS BLUE LITMUS PAPER RED, AND IF ALKALINE, TURNS RED LITMUS PAPER BLUE.
RED
BLUE

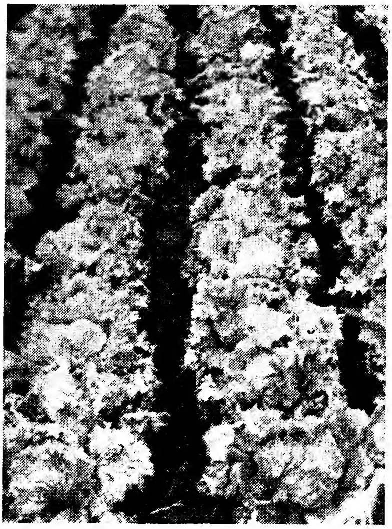
*A rough soil test.*

### TYPES OF LIME.

Various kinds of lime are available for agricultural use and all are more or less efficient. They have varying proportions of the different components of lime, but this need not greatly worry the home gardener.

Perhaps the most efficient is the limestone used by builders, which will soon air-slake into powder if stored for a short while. Once powdered it is dusted over the beds at the rate of about one handful to the square yard. If this stone lime (burnt) is slaked by lightly watering till it forms a fine dry powder, it becomes Hydrate of Lime—the quickest acting form, and about twice the bulk of the burnt stone.

Carbonate of Lime is the form to which this slaked lime reverts in time, and is also the term used for ground limestone, ground shells or chalk. Carbonate of Lime is a little slower in action and can be used in heavier quantities.



*Good soil fertility induces uniform results such as these Imperial* 847 *Lettuce.*

### REPLACEMENT OF LIME.

Depending on the rainfall and other weather factors, the effect of lime does not continue indefinitely and the soil again becomes acid. Generally speaking, lime is replaced annually, but this would also depend on the type of plant to be grown and the soil that it is intended to lime.

### HOW TO APPLY.

The best method is to broadcast the lime by throwing it out of the bucket or bag in handfuls so that the ground is uniformly "snowed over" and so that the estimated quantity for any particular area is used up. It is then lightly worked in with a fork to incorporate it with the top 6 inches of soil.

The following quantities are intended to serve as a guide only but are quite safe for general use.

| | Slaked Lime Per Sq. Yd. | Ground Limestone Per Sq. Yd. |
|---|---|---|
| Medium to heavy loams .. .. | up to 1-lb. | up to 1½-lbs. |
| Clay loams and soils .. .. | up to 2-lbs. | up to 2½-lbs. |
| Sandy loams .. | ½ to ¾-lb. | ¾ to 1-lb. |
| Very sandy soils | up to ½-lb. | up to ¾-lb. |

### LIME REQUIREMENTS OF PLANTS.

Of recent years more has been learnt about what different plants require in the way of lime and some experts maintain that liming is often overdone.

It is certain that some garden plants resent lime, whilst others grow well in slightly acid soils. The "tolerance" of the more generally grown plants to lime is indicated by the following guide.

*VERY TOLERANT* (Inclined to favour *acid in soil)—Parsley, potato, radish, strawberry, sweet potato, tomato, cow pea, maize, millet, oats, rye, azalea, ferns, heaths, iris, orchids, rhododendron.*

*TOLERANT (Favour soils which are not completely neutralised by liming)—Bean, brussels sprouts, carrots, choko, cucumber, endive, kohl rabi, pea, pumpkin, rhubarb, squash, turnip, water melon, crimson clover, vetch, aster, begonia, canna, daffodil, jonquil, larkspur, petunia, primrose, violets, most bulbs.*

*SENSITIVE (Favour neutral soils)—Broccoli, cabbage, cauliflower, egg plant, sweet corn, barley, rape, red clover, sweet clover, wheat, white clover, candytuft, gladiolus, iceland poppy, pansy, rose, snapdragon, viola, wallflower, zinnia.*

*VERY SENSITIVE (Require very heavy applications of lime)—Asparagus, beet, celery, lettuce, onion, parsnip, spinach, lucerne, carnation, chrysanthemum, dahlia, stock, sweet pea, tulip.*

### OVER LIMING.

Curiously enough it is often the very acid soil needing lime badly that is most effected by over-liming. The reason is that the excessive amount temporarily disturbs the balance of the necessary plant foods, including Phosphates, and plants assume a yellowish tinge. The condition can often be restored by an application of Superphosphate. Large additions of organic matter such as compost, manure, etc., are very effective in reducing over-liming injury.

## HUMUS.

More and more importance is being given to the necessity for humus. Soils without it are barren and arid. They lack the helpful bacteria necessary to the growth of plants, and they fail to conserve moisture. The continual addition of artificial fertilisers decreases even further their productivity.

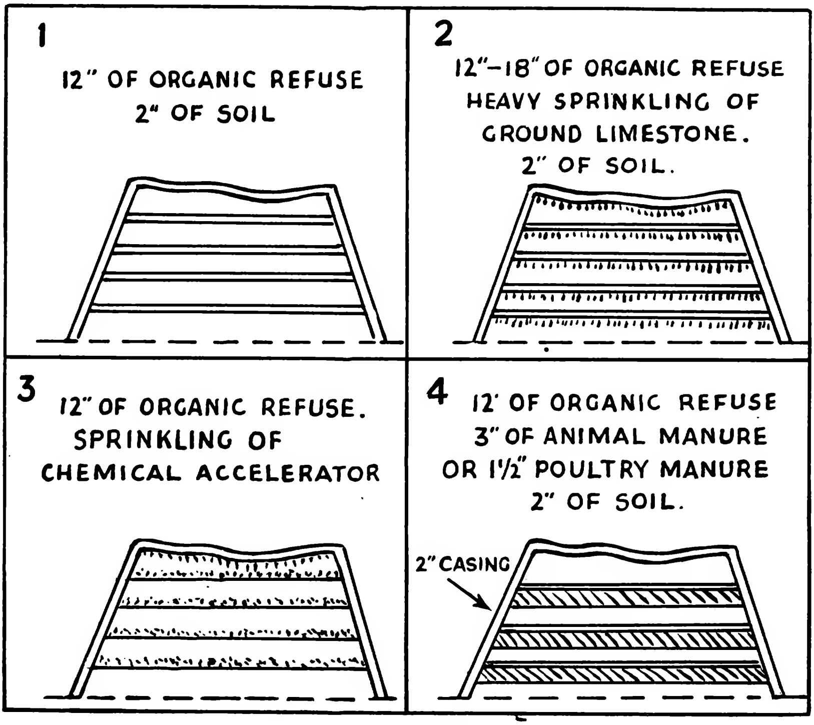
Humus is obtained from decayed vegetable and other organic material, which becomes incorporated with the garden soil. It is provided by the addition of rotted manures, vegetable matter, seaweed and similar materials of a fibrous nature.

To sum up, it is fairly safe to say that a large majority of the home gardener's problems would be solved if the introduction of this valuable element was provided for adequately. Therefore, a brief survey of the most convenient methods is well worth attention.

## THE COMPOST HEAP.

It is a pity that not more of these are seen in gardens where space can be provided for them. In limited areas there is often an objection to unpleasant odour, but this can be counteracted by mixing a plentiful supply of ashes with the compost, or purchase a small quantity of Gypsum or Potash and sprinkle a handful here and there as the heap is built up. If the following method is adhered to, the heap will decay quickly and cause no unpleasantness.

Save all garden refuse, such as cut-



EXPLANATORY.

*Here are four types of compost heaps. No. 1 may take from 6 to 8 months before being ready for use but it is the most simple form. The heap should be turned and re-made after 2 months. No. 2 involves the use of lime and should be ready in from 5 to 7 months. No. 3 is the quickest of all and for this it is necessary to purchase a chemical accelerator of which there are various brands on the market (see garden magazines, etc.). It should be ready in about 2 months; no turning is required. No. 4 is perhaps the best compost of all, having the addition of valuable animal manure containing the necessary bacteria. This should be ready in from 3 to 5 months and should be turned after 6 weeks. All heaps should have the 2-inch casing of soil as indicated in No. 4.*

tings, lawn clippings, leaves (of vegetables and trees) and also any house refuse that will rot; spread a layer of this collected material about 6 inches deep on a selected area of ground, say, 6 x 4 feet, and fork well into it a generous dusting of lime. Then sprinkle a handful of Superphosphate over this, followed by a double handful of Sulphate of Ammonia and 2 inches of soil. Build up layer for layer in this way, forking in lime each time, until the heap reaches a height of about 3 or 4 feet, covering the top and sides with a good layer of earth. If a hole is made in the centre of the heap and water poured in frequently, decay will be accelerated. Too much water will cause leaching of the valuable nitrogen. Therefore only moisten the heap.

Other types of compost heaps are illustrated on page 19.

**HASTENING DECAY.** — During the summer the heap should be ready in about 8 weeks, according to the material used, but during colder weather it will take longer to decay. If the heap is required quickly, materials such as bones and "woody" vegetation, which are of slow decay, should be omitted. To use the compost, spread about a 3-inch layer over the beds and dig in well; not only will it have value as humus but, through its very composition, will include well-balanced plant food. If animal manure can be included in the compost, so much the better. A little compost material included in soil prepared for raising seedlings is excellent.

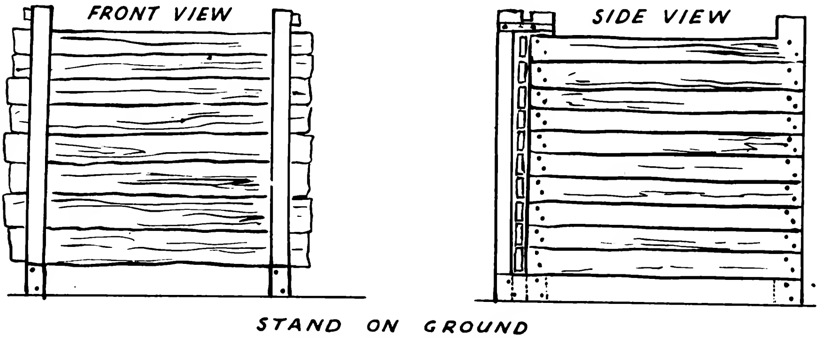
## GREEN MANURING.

Although not yet widely practised in home gardens, green manuring has considerable value, especially where the garden is a fairly large one and there is land available for "spelling." All such ground during its period of idleness should be dug over and sown with suitable green or cover crops.

The purpose of this is to dig the crop in at the right stage, which we will discuss later, and so provide humus in a cheap and easy form. Those gardeners who are experiencing the general difficulty of obtaining animal manures will appreciate the value of this method.

Not only do such crops provide humus but increase the plant food content of the soil, particularly Nitrogen in the case of leguminous crops, and make available to subsequent garden crops the benefits of artificial fertilisers used in growing the green crop. For instance, if balanced plant food containing Nitrogen, Phosphate and Potash is given to the green crop, these ele-

A COMPOST BOX



*Where space and compost materials are limited and, in fact, only small quantities of compost are required, a compost box will be found handy. The boards in the front can be slid out or in, according to whether the box is being emptied or filled. To ensure that worms have access to the compost, boxes should always be stood on the ground and not on boards or concrete. Worms are almost essential in the making of compost. For this reason it is not advisable to dig deep pits into the subsoil to make compost.*

ments will be returned to the soil when it is dug-in, in a much safer form (and more easily assimilated) than if the artificial fertilisers had been applied direct. Even if fed only with Phosphate in the form of Superphosphate, leguminous crops will gather Nitrogen from the air that will be imparted to the soil.

To grow a green crop dig the soil in the usual way and either sow the seed broadcast or in drills at the quantities recommended for the particular variety or varieties grown. (See below).

If water is available the soil should be kept moist during dry spells so as to induce luxurious green growth. Flowering crops, such as Lupins, Field Peas and Cow Peas are best dug in at full flower, for it is then they are carrying their highest amount of Nitrogen.

Such crops should first be chopped up and this is best done with the hedge shears while they are still standing. Take off about 6 inches with each "cut" until the base of the plant is reached. Another method is to knock them down and chop them up with the edge of a sharp spade.

Other crops, such as Millets and Oats, are dug in when about 18 inches to 2 feet high.

In warm humid weather the soil is usually ready for planting six weeks after the crop has been dug in, but it may be longer than this if the weather is cool or cold. Naturally decomposition will not take place while the soil is dry and there must be moisture present both at time of digging-in and while the crop is decomposing.

## CROPS TO GROW.

### Legumes.

These are the most important of the green manuring crops and where possible it is advisable to grow one or the other of them. For the home garden, the Clovers are probably the most easily managed. Some of them, particularly the Red Clover, are very ornamental and additionally they can be cut for fowl feed during their growing period.

The mere growing of leguminous crops improves the soil because they absorb nitrogen from the atmosphere via the bacterial nodules attached to their roots and, unlike the non-leguminous crops, they do not deplete the nitrogen in the soil during the process of decay. In fact, they frequently leave a surplus of nitrogen which is available to the crops the home gardener plants after digging in. This is a most important thing to bear in mind when deciding what to grow for a green manuring crop. Other factors in their favour are that they keep down weeds, have enormous bulk of green stuff, and rapidly decompose after digging in.

**CLOVERS.** — These include Red Clover, Berseem, Bokhara, and Subterranean Clover. Generally they are sown on their own, preferably in drills spaced about 15 inches apart. Seed is sown in most districts from about January to April. As already indicated, Red Clover is probably one that will appeal most to the home gardener. If required first for poultry feed, it can be grown for two years before digging in.

**FIELD PEAS.**—One of the best crops for providing a good bulk of green stuff and a rapid grower. Often sown with Oats (equal parts) to add extra fibre in providing humus. Plants should be well chopped up and covered during digging in. Sow during Autumn.

**VETCHES.** — Will often succeed where Field Peas might fail owing to hard Winter conditions or because of heavy unyielding soils. They are also sown in conjunction with a cereal such as Black Winter Ryecorn, say, 15 lbs. Purple Vetch to ½ bushel Black Winter Ryecorn. Sow during Autumn.

**NEW ZEALAND LUPINS.** — A valuable green crop in providing a large amount of bulk and adding Nitrogen to the soil if dug in at the flowering stage. Can be sown in Autumn or early Spring in most districts.

**LUCERNE.**—This, too, will provide a ready source of feed for poultry and at the same time affords wonderful material for digging in. Where there is ample water available, seed is sown fairly thickly in drills spaced 15 inches apart. Lucerne seed is sown in most districts from about February to October, with the exception of the very coldest month—June.

**COW PEAS.**—These actually belong to the Bean family and are a Summer crop for sowing during Spring or early Summer. Often used in conjunction with Japanese Millet, roughly fifty-fifty.

**VELVET BEANS.**—Seed is often difficult to obtain but it is a good Summer growing crop for Spring sowing.

### Other Crops.

**MUSTARD.**—Although not a crop that provides a great deal of bulk, it is well suited to home gardens because it is quick growing and can be dug in a few weeks after sowing. Seed is sown during Autumn or early Spring.

**CEREAL CROPS.** — Oats, Barley, Wheat and Ryecorn can all be used for green manuring but they are best when mixed with a leguminous crop.

**JAPANESE MILLET.** — Another quick growing Summer crop which, although it can be used on its own, is best mixed with Cow Peas or other Summer growing legumes.

## MULCHING.

This is another important aspect of gardening which could be more extensively adapted to home garden conditions. During the Summer months there is rapid evaporation of moisture from the soil and mulching provides a ready answer to this problem.

The term mulching means nothing more than the covering of the surface soil with suitable materials, such as rotted manure, grass cuttings, leaf mould and any suitable vegetation. It then puts a protective layer between the heat of the sun and the roots of the plants which are not always adequately "insulated" by many of our poorer surface soils.

Almost daily gardeners see a practical demonstration of the value of mulching when they pick up a bag or piece of timber that has been lying on the ground for some time. Underneath, the soil is usually moist even during the hottest weather and all weed growth is killed.

It is worth mentioning that in other countries mulching paper is laid over large areas and seedlings are planted in holes made through it. This would be hardly practicable in ornamental gardens but has some value in the vegetable patch, providing some suitable material is obtainable. Such papers, however, are not usually available in this country. The best time for mulching is during the Spring and Summer months but it is an advantage to do it at any time. Usually a layer of an inch or more of whatever material is available is laid over the beds without actually spilling over into the crowns of younger plants, some of which, particularly Iceland Poppies, resent such treatment.

## HOEING, WEEDING AND SURFACE CULTIVATION.

It is only during very recent years that research has indicated the doubtful advantage of surface cultivation in conserving moisture in the soil. For centuries it has been considered that surface cultivation broke the capillary action of moisture constantly rising to the surface and evaporating. This theory is now considered to be very much subject to doubt, for it has been fairly substantially proved that rapid capillary action, i.e., the rising of the moisture from the subsoil to the topsoil, does not take place.

Surface cultivation, however, is still necessary to control weed growth, particularly in its very early stages, because when weeds are only just through the surface it is necessary to no more than scratch the ground to kill them. Unduly deep surface cultivation, however, particularly near the plants themselves, can considerably interfere with their growth and should not be practised. Mulching, as already described, is the better form of conserving moisture, and at the same time will keep down a great many weeds.

It is a fact, however, that a hard surface soil does not easily absorb water, which quickly runs off with very little penetration. Some surface cultivation is also necessary to absorb rain or the water from the sprinklers.

## CROP ROTATION.

To many gardeners this is a rather frightening term, because they imagine it entails a great deal of scientific theory. Actually, however, it is nothing more than ensuring that a crop of one particular vegetable family is not continually grown in the same soil. To take it a little further, it is even better if crops of the three main families are rotated one after the other.

Plants of different families make use of plant food at different rates from the others, and sometimes at different levels. They are, in the main, subject to different types of diseases, especially those which are soil transmitted.

Furthermore, leguminous crops such as Peas and Beans add nitrogen from the air whilst root crops tend to break and loosen the deeper soil. Consequently, as each family has more or less a different function it can be easily seen that not only does it prevent the same plant food being continually taken from the same level, but actually some crops improve the soil. For the home gardener, crops can be divided into three main sections as follows:—

*LEGUMES—Peas and Beans or any plants whose seeds are eaten.*

*GREEN OR LEAF CROPS—Cabbage, Cauliflower, Lettuce, Spinach, Tomatoes, etc.*

*ROOT CROPS—Carrots, Turnips, Beet, Onions and Potatoes.*

It is not a difficult matter to arrange plantings of seed for these three sections. Land can be started off with legumes, followed by leaf crops, and finally with root crops. After this cycle has been completed there could be a period of fallowing, but if space does not allow this, then the next cycle can be commenced in the same order.

*Clovers make a splendid green-manure crop for the home garden. See page 21.*

*"Let the children plant a garden and develop a creative instinct and the love of beautiful things."*

## CHAPTER 4.

# MANURING AND FERTILISING.

**It is a fact that where there are ample quantities of animal manures available "artificials" can be dispensed with, at least for some time. They contain practically all the elements required, particularly Nitrogen Phosphate and Potash in a natural organic form, best adapted for the plant to use.**

At the same time it must be remembered that not all plants require the same proportions of these plant food elements and animal manure that is too fresh can, because of excess Nitrogen, cause rank growth, particularly with leguminous plants such as Peas, Beans, Lupins, etc., and can actually kill them. There are also flowering plants that do not favour animal manures but these are mainly the varieties that grow naturally in semi-arid conditions.

As already indicated, the 3 main elements required in a complete plant food are Nitrogen, Phosphoric Acid and Potash. Of these the first two are the ones requiring frequent replacements, and Potash in the amounts required by plants can be replaced occasionally by the application of wood ashes or even animal manures.

There are, of course, many other elements which are required in such very minute quantities as to enable the gardener to leave them out of account, except in very special circumstances. Occasional dressings of animal manures will also ensure that some of these "trace" elements are imparted to the soil.

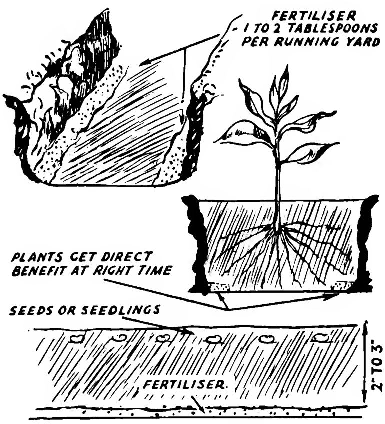
Here again it must be stressed that the use of "artificials" in arid soil, i.e., that lacking in humus, is a complete waste and may even be harmful.

They should, therefore, be used in conjunction with compost material or in the form of rotted vegetation, as well as animal manures.

## HOW TO PROVIDE PLANT FOODS.

The home gardener is well advised to buy his fertilisers ready mixed as do many farmers and commercial **growers of flowers and vegetables.**

PLACEMENT OF FERTILISER



SECTION VIEW.

*Correct placement of fertilisers prevents wastage, ensures that plant food is readily available and eliminates the possibility of injury to the roots of young plants or to the seeds. Before planting, make a narrow trench (6 inches wide) and apply the fertiliser as indicated in the above illustration, afterwards replacing the soil.*

These mixtures are the safest way of applying fertilisers because they are in themselves complete plant foods. One of the most reliable is classified by numbers, i.e., No. 12 for Roses, Lettuce and Cabbage, etc., No. 5 for Tomatoes, Potatoes and Sweet Peas. There are other numbers for special plant requirements and the gardener can choose the one required adhering to the recommendations of the maker, who is in turn bound by law to indicate the analysis of every mixture. The variations in these mixtures are mainly in the proportions one to the other **of the three basic elements.**

However, from time to time the gardener will read of directions to use Superphosphate, Sulphate of Ammonia or Nitrate of Soda, and some idea of the functions of these manures is necessary.

**SUPERPHOSPHATE.** This is the artificial fertiliser generally used to impart the necessary Phosphoric Acid required by plants. It is not a forcing manure, but essential to healthy stem and root development.

Most Superphosphate is now branded 22% and contains 20% water-soluble Phosphoric Acid. Other fertilisers containing this valuable element are Bone Dust, Guano, and Blood and Bone. These are organic fertilisers and have great value. Phosphates are not easily lost from the soil but as they form compounds not usually available to plant life they need frequent replacing.

**SULPHATE OF AMMONIA and NITRATE OF SODA.** These "artificials" are the most common for providing necessary Nitrogen. They are widely used for promoting leaf growth, particularly in Cabbages and Lettuce. Given in the right quantities either can be used with safety, although Sulphate of Ammonia is the most easily obtainable and generally used. It may not be quite so "sudden" in its action as Nitrate of Soda, but is usually preferred, at least during the Summer months. It can have the effect of making the soil "sour" with constant use, but liming will correct this. Nitrate of Soda is favoured by many commercial growers for Winter use because they contend it acts more readily during the cold weather. Both of these fertilisers can be applied dry at the rate of one ounce to the square yard or in solution—1 oz. to a gallon of water. Both should be used with care on young seedlings and any quantities recommended for particular plants by the manufacturer of the brand used strictly adhered to.

**POTASH.** Most commonly used artificial fertiliser is Sulphate of Potash which is generally mixed with other fertilisers in the correct proportion. It is not a forcing fertiliser, but soil without Potash cannot produce healthy plants. It strengthens the fibres and tissues of the plants as well as the skins of fruits and, in general, it is essential to the production of healthy crops. Fortunately most soils already have a good proportion of Potash, especially clay soil, or those that have been liberally dressed with animal manure. It can also be provided by the addition of wood ashes and is not quickly lost from the soil.

**THE USE OF FERTILISERS.** As already indicated, the home gardener is saved a considerable amount of trouble by using ready mixed fertilisers, but there may be times when it is preferred to mix one's own for any particular crop. Most of the more commonly used "artificials" are available in small or large quantities and can be purchased from the local store.

**MIXTURES FOR THE HOME GARDEN.** First we need an efficient complete fertiliser for all heavy feeding crops, such as Cabbage, Tomato, Lettuce, Celery, Vine Crops (Melons, Pumpkins, etc.), and Cauliflower, etc. For heavy soils, mix by weight 1 part of Sulphate of Ammonia, 2 parts Blood and Bone, 4 parts Superphosphate and 1 part Potash. For lighter soils, such as sandy loams, it is usually advantageous to increase the Potash content by mixing the same ingredients in different proportions, i.e., 1 part Sulphate of Ammonia, 1 part Blood and Bone, 3 parts Superphosphate, 1 part Potash. Leguminous crops, such as Peas, Beans, Sweet Peas, Lupins, Broad Beans, etc., require less Nitrogen. A suitable fertiliser is to mix by weight 2 parts Blood and Bone (or 1½ parts Sulphate of Ammonia)), 4 parts Superphosphate, 1 part Potash.

NOTE: If obtainable, Dried Blood is preferable to Blood and Bone in any of the above mixtures and, if used, the Sulphate of Ammonia can also be dispensed with, but the quantity should be replaced with Dried Blood, i.e., 1 part Sulphate of Ammonia, 2 parts Blood and Bone would equal 3 parts Dried Blood.

**APPLICATIONS OF FERTILISERS.** In the foregoing remarks it has been shown that most plant foods are rapidly lost either through leaching or because of their change to other compounds. This will serve to illustrate the futility of placing fertilisers out of the range of a plant's roots, which is what usually occurs when they are broadcast.

Discretion must be used in every case, but with surface-feeding crops, food should be made available in the top 3 inches of soil and either placed in a ring around the plants, or on either side along the rows. When ground is fertilised before an outdoor sowing in drills, manures should be distributed at a lower level (2 or 3 inches) than the seed itself. This is accomplished by opening a drill the bottom of which is lightly "snowed" with fertiliser, leaving a narrow unfertilised strip down the centre, and then replacing 2 inches of soil before sowing the seed.

Root crops requiring fertiliser, such as Potatoes and Beet, derive more benefit from side dressings rather than deep applications.

Amounts to Use: Any of the mixtures can be applied with safety at a rate of 2 to 4 ounces per square yard. Where plants are grown wide apart, the soil 6 inches on either side of them would be regarded as within range of the roots, and quantities should be applied accordingly.

**CROP REQUIREMENTS.** The following notes will give some idea as to the manurial requirements of different vegetables:—

Cauliflower, Cabbage, Tomato, Asparagus, Rhubarb, Lettuce and Broccoli require heavy fertilising, and it is not too much to incorporate at least a 3 to 4-inch layer of cow or horse manure in the soil. These crops favour manures which are rich in nitrogen, and such artificial fertilisers as Nitrate of Soda and Sulphate of Ammonia can either be applied when the ground is dug or given in liquid form later.

Onions, Leeks, Melons and all vine crops, Spinach and Sweet Corn favour manures with a high phosphatic content, such as Superphosphate. They do not require an excess of nitrogen. However, the inclusion of Potash in a mixture is beneficial to these crops. A good artificial mixture would be 1 part Sulphate of Ammonia, 3 parts Superphosphate to ½ part Potash, applied at the rate of 4 ounces to the square yard. The quantity of animal manure can be gauged by spreading a 2-inch layer on the surface before digging in.

Turnips, Parsnips, Carrots and Kohl Rabi prefer ground which has been manured for any one of the crops mentioned in the previous paragraph. They do not require any further manuring. If the ground is poor, however, and has not been improved by previous applications of manure, it would be advantageous to dig in a good quantity of thoroughly decayed manure. This will provide mainly humus, which is essential to the life of all plants. As extra food, a very light dressing—equal parts Superphosphate and Potash—would help in poor soils. All animal manure used on Root Crops should be very thoroughly rotted and dug well into the soil which, of course, should be worked deeply.

## LIQUID MANURE.

### MADE FROM "ARTIFICIALS."

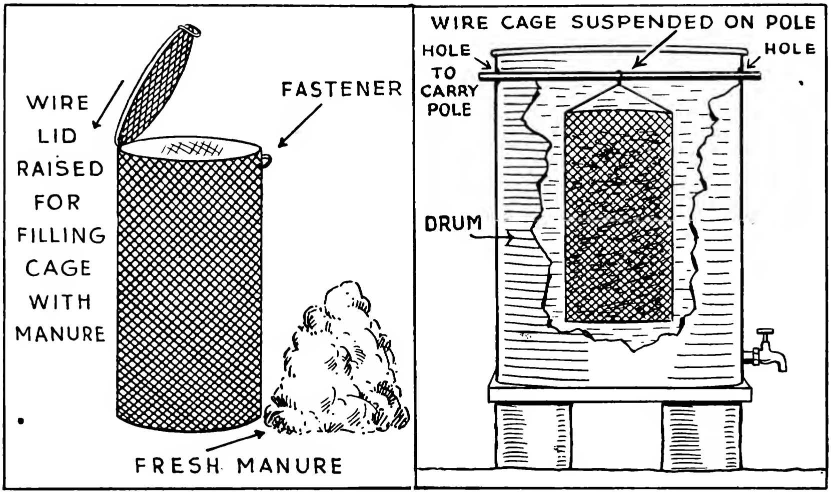
Practically all fertilisers can be applied in liquid form. Probably the most used in this way is Sulphate of Ammonia at the rate of 1 ounce to a gallon of water (it can also be used in the dry form at the rate of 1 teaspoonful to a plant and afterwards watered in). The liquid method of application is probably the easiest and safest for the home gardener. As Nitrate of Soda is much quicker-acting and allows its Nitrogen to be immediately available to the plant, smaller doses are applied more frequently. This should be used at the rate of 1 ounce to 2 gallons of water (or in dry form 1 teaspoonful to a plant).

Superphosphate is sometimes given in the liquid form, but not all the powder will dissolve in the water. It should, however, be kept well stirred, so that it is "suspended" while it is being carried in the drum or can.

**LIQUID ANIMAL MANURES.** Liquid manure made from cow, poultry, pig or horse manure is really the very best and most natural form in which to feed the plants with the food tonic and stimulating elements it contains. It is mostly nitrogen which it supplies, but it also contains other necessary foods and salts, also valuable bacteria for the soil and plants.

**HOW TO MAKE LIQUID MANURE.** The usual method is to fill a sugar bag with any one of the above manures and suspend it from a pole laid across the top of a cask containing approximately 40 gallons of water. After soaking for a week, the resultant liquid should be used one part to three parts of water. When it has all been used, the cask could then be filled again for another week's soaking of the sugar bag. This time equal parts of water and liquid manure are used. This process is again repeated but, on this last occasion, the liquid manure is used straight from the cask without the addition of any water. Any of the above solutions are used at the rate of 4 gallons to every 20 feet of row. When applied in this way very little other stimulant is necessary for garden crops, such as Lettuce, Cauliflower and Cabbage. Occasionally, either Nitrate of Soda or Sulphate of Ammonia at the rate already mentioned are added to the liquid manure for shrubs and other strong-growing plants.

**ANOTHER METHOD OF MAKING LIQUID MANURE.** For convenience and cleanliness in preparing and using animal liquid manure, the following suggestion has been used by many gardeners: Instead of a sugar bag, a wire cage made from heavy "cyclone wire" with ¼ inch mesh is used. This cage is made in the form of a cylinder with a fixed wire base and movable wire lid. It is suspended from a pole inserted through holes just under the rim of the drum. At the base of the drum a tap is inserted for drawing off the liquid, which, because of the close mesh of the wire container, should be quite free from any extraneous matter. For convenience in using the tap, the drum


WIRE LID RAISED FOR FILLING CAGE WITH MANURE
FASTENER
FRESH MANURE
WIRE CAGE SUSPENDED ON POLE
HOLE TO CARRY POLE
HOLE
DRUM

*DETAILS OF THE ABOVE:*

*DRUM OR CASK* — *40–60 Gallons.*
*STAND* — *for supporting drum—20 inches high.*
*CAGE* — *Diameter 12 inches; height 2 ft. Made of ¼ to ½ inch diamond mesh crimp or similar strong wire.*
*POLE* — *for carrying cage can be made of wood or three-quarter inch water piping.*

is stood on a stand 18 inches from the ground. It is more hygienic if the drum has a lid which can easily be lifted for filling with a hose or can. This method, although a little more expensive, at first, than the use of a sugar bag (which quickly rots), is clean, convenient and labour-saving. The residue of manure from the "cage" is excellent material for seed beds, mulching, compost, etc.

However, an even cheaper and apparently just as effective method has been submitted to us by a gardening enthusiast, who read of this suggestion in an earlier edition of our Garden Guide. It has not been tried by us, but appears to be an excellent and economical way out of the problem. Obtain a 40-gallon oil drum which has a threaded outlet hole at the top. Remove the **bottom** of the drum with chisel or suitable tool and then turn it upside down so that the **top** now becomes the **bottom.** Do not apply heat to drum—it is an extremely dangerous practice. Into the threaded outlet hole screw a ¾-inch wrought iron bend and on to this fix a tap. Next obtain a 4-gallon oil drum to hold the manure. The sides of the drum are then cut vertically all round, leaving three strips 2 inches wide holding the top and bottom together. Around the circumference of the drum wrap some ½-inch mesh galvanised "chick" wire, and tie it so that it will not easily slip. Leave one corner free so that the container can be filled with manure and then fasten it. It is then suspended inside the big drum by pushing a rod or piece of pipe through the handle provided on the small drum much in the same way as illustrated for the "cage" method.

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*"In all places, and all seasons,*
*Flowers expand their light and soul-like wings,*
*Teaching us, by most persuasive reasons,*
*How akin they are to human beings."*

*—Longfellow.*

## CHAPTER 5.

# RAISING SEEDLINGS.

**Raising your own plants in the home garden has many advantages: it is economical; there is a very wide choice of strains and varieties available, including all the new improved ones; the seedlings are stronger and can be transplanted when it is most suitable and convenient; and much of the joy of gardening is in watching the seeds germinate and flourish.**

**Don't forget, however, "good gardens must begin with good seeds." That is why so many gardeners insist on Yates' seeds.**

## SEED BEDS.

**THE METHOD:** Professional growers and experienced gardeners prefer seed beds instead of the old laborious method of boxes. With beds, there is a great saving in labour, the seeds can be spread out more freely, root growth is usually stronger and better germination is often experienced.

Many varieties are sown direct where they are to bloom or bear their crops, and wherever possible, it is recommended that this be done. The useful hints on the back of every packet of Yates' seeds will be of help in determining whether to sow directly into the open or in a seed bed.

**SITUATION FOR SEED BEDS:** For best results choose a sunny position sheltered from southerly and westerly winds. For Summer sowings it is better if the seed beds have sun until about noon, but it is always an easy matter to arrange some kind of shade if the sun is too hot.

*Before sowing, carefully level the surface with the batten so that there are no small hills or hollows.*

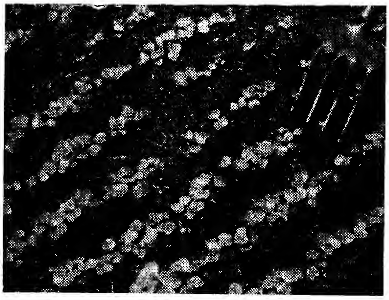
*To make the rows for the seeds, press the batten gently but firmly into the surface of the seed bed.*

**PREPARATION:** Mark out the area required, turn over the soil very lightly with a fork, breaking down the larger lumps. At this stage, a little slaked lime dusted over the surface will be found of assistance.

If time permits let the ground settle for a week or two before sowing. To hasten this process give one or two thorough soakings. A firm seed bed is most important and if you sow directly after the ground has been dug, make sure the soil is pressed down firmly with a batten or the back of a spade.

Afterwards level the surface with the edge of a batten as indicated in the illustration at left. This will simplify later watering and ensure an even growth of young seedlings.

**SOWING:** Illustration above shows how to make small rows, or drills, by pressing the edge of a batten into the surface of the soil. For most seeds these are made about ½ inch deep, but for fine seeds, such as Iceland Poppies, it will be necessary to make



*Weeds should be cut right off as soon as they show through the surface.*

only the slightest impression on the surface.

Seeds are strewn along the bottom of the drills by tearing the corner off the seed packet and tapping with the finger. If you find this difficult, tip all the seeds into the palm of your hand and pick out a few at a time so they can be trickled along the drill. Press them lightly into the soil with the edge of a batten after you have completed each row—it is essential they make good contact with the earth.

**COVERING THE SEED:** A most important part of the job. As a guide it can be said seeds should be covered with soil not more than twice their own thickness. This means that very tiny seeds (Begonia, Iceland Poppy, Petunia, etc.), barely need covering at all, and this process would best be described as dusting the soil over. For covering, use the same soil as in the seed bed, rubbed finely through the hands or sieve. Other suitable materials are sand, dry rotted manure and compost.

**WATERING:** Always use a fine mist spray or a very fine "rosed" watering can. As a protection, the whole surface can be covered with paper, hessian or bagging and the water (or rain) falls on this instead of directly on the seeds. This covering must be removed as soon as there are signs of germination, otherwise plants will be lost through lack of light.

**GROWING SEEDLINGS:** Illustration above indicates the advantages of having straight rows instead of broadcasting seeds haphazardly over the soil. Weeds can be killed as soon as they appear by scratching the surface with a hand fork or tiny cultivator, taking care not to damage the roots of the growing plants.

**TRANSPLANTING:** See page 32.

## SEED BOXES.

**REQUIREMENTS:** The reason why seed boxes are sometimes preferred to the more convenient method of seed beds is because they can, if necessary, be moved if weather conditions are unfavourable and where seedlings are raised on shelves in bush houses they are, of course, absolutely necessary. It is under these conditions that some of the more rare seeds are raised or those which are more likely to succumb to a sudden change in the weather, such as heavy rain or extremely hot sunshine. Such seeds as Iceland Poppies, Gerberas, Primulas, are often first raised in boxes in a bush house and later transferred to the open for hardening off.

A little more careful preparation of the soil is usually necessary and we can therefore first examine what are the materials we need. These are as follows: (1) Some shallow, strongly constructed boxes 4 to 6 inches deep, with holes or slats in the bottom; (2) a ¼-inch mesh garden sieve; (3) some light sandy loam; (4) some moisture-holding ingredient such as well-rotted manure or compost.

Sieve these materials through the ¼-inch mesh sieve, and then mix two-thirds loam with one-third sand. Add

*Take plenty of soil with the seedlings when lifting them for transplanting.*

a little manure. If the loam is very heavy allow rather more sand and vice versa. It is a good plan to make more of this mixture than is actually required, so that there is always some available for emergency sowings.

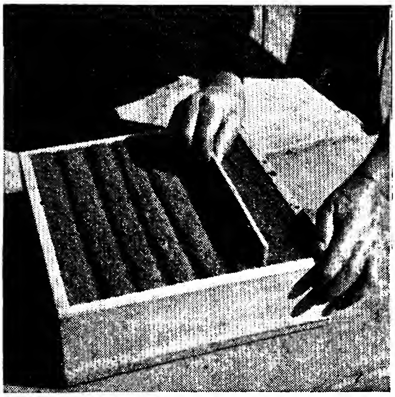
For use, the mixture should be damp, but not so wet that it fails to run freely without clogging when handled.

To test it, take a handful and compress it in the hand. If it fails to fall apart slowly it is probably too wet, but if it does it is ready for use.

**PREPARING THE BOXES:** Boxes are usually 15 x 15 inches, and if slatted at the bottom there should be approximately ¼ inch between the slats, which are usually 1½ inches wide. If holes are bored in the bottom these should be 1 inch in diameter and about 1½ inches apart. Over the bottom of the box lay some clinker ash, coarse gravel, or broken crockery, roughly 1 inch deep. Fill the box with the prepared mixture, shaking and "dumping" it to ensure thorough consolidation. With a small flat piece of timber gently but firmly press the surface, particularly at the corners, and ensure that it is level. The depth of the prepared mixture should not exceed about 3 inches, otherwise it may become sour.

**SOWING THE SEED:** Broadcast sowing in seed boxes, though sometimes practised, is not recommended. The best way is to sow them in shallows rows 1½ inches apart as for seed beds already described.

*Lightly cover, then press down surface.*



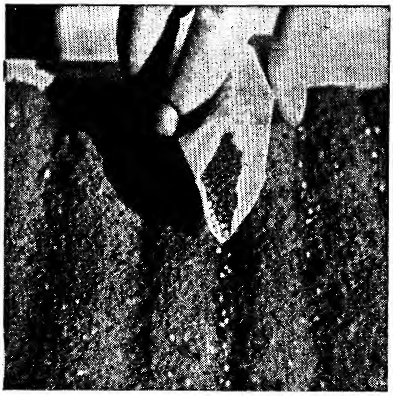
*Fill box, consolidate and level surface.*

Watering is the same as for seed beds, but another method used for seed boxes is to stand them in a cask or tub and let the water run in until it is within ½ inch of the soil surface. When the moisture shows on the top of the soil remove the box from the water.

**PROTECTION:** In cold weather "shy" seeds may need the assistance of extra warmth by using a sheet of glass, which can be laid over the top of the box and over this again a sheet of newspaper. Whatever covering is used it gives protection from heavy rain, and prevents the possibility of seed being washed out.

In very hot weather most seedlings need some protection from the sun, and are raised under semi-shade. A bush-house is ideal, but twigs interlaced through netting and mounted on a frame will serve the purpose. However, seedlings must be hardened off in the sunshine for a week or two before they are due for transplanting.

**PRICKING-OUT:** This is the term used when young plants with their second or third leaf are transplanted from the seed beds or boxes into another similarly prepared bed where they grow until they are large enough to transplant into their permanent position. Most gardeners have quite good results without pricking-out seedlings, but there are undoubtedly many advantages; seedlings are always stronger; more advanced, and



*It is easy to make even sowings.*

can be finally transplanted with minimum loss.

Soil is prepared much in the same way as for the seed-beds, but in this instance, the surface is marked out into 2-inch squares with the edge of a batten and the seedlings are planted where the lines cross. If seed beds out in the open are used, it will be necessary to make some arrangements for shelter from hot sun, such as hessian which can be rolled up and down at will. During the summer months pricking-out should be done in the coolest part of the day and preferably when the bed is shaded. Only a few seedlings should be lifted at a time, for such tiny plants will quickly perish if there is wind or heat. Take care not to break the roots and hold the seedlings to be planted between the thumb and forefinger just below the leaves. For a dibber, use a pencil or any similarly rounded piece of wood, sharpened to a point. This is then pushed into the soil at the first cross line, dropping the roots of the plant into the hole made by it. Press the soil against the roots of the seedling firmly with a sideways, not downwards, pressure. After you have completed each batch of plants, water with a fine mist spray.

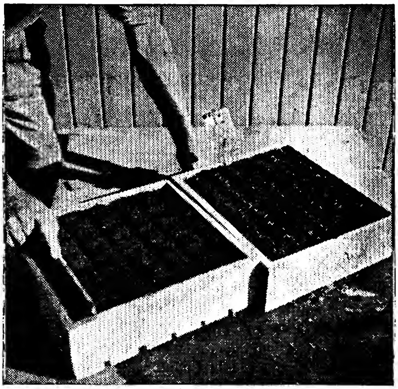
## TRANSPLANTING.

Even the best of raised seedlings can receive a severe check in transplanting if a few simple rules are not followed. As the plant depends entirely on its roots for life it is evident that these must be handled with care. If seedlings have been pricked out it is a simple matter to run a knife along the centres of the rows crosswise so that each seedling stands in its own square of soil. By pushing a trowel along underneath the roots each is then lifted out with a minimum of disturbance.

The day prior to transplanting the ground should be thoroughly moistened and it will then be in an ideal condition for the job; that is, moist, but not wet. Ideal weather for transplanting is a cool, overcast day, but it is not always possible to await such conditions and the best time is then during the evening, so that plants have an opportunity to pick up during the night.

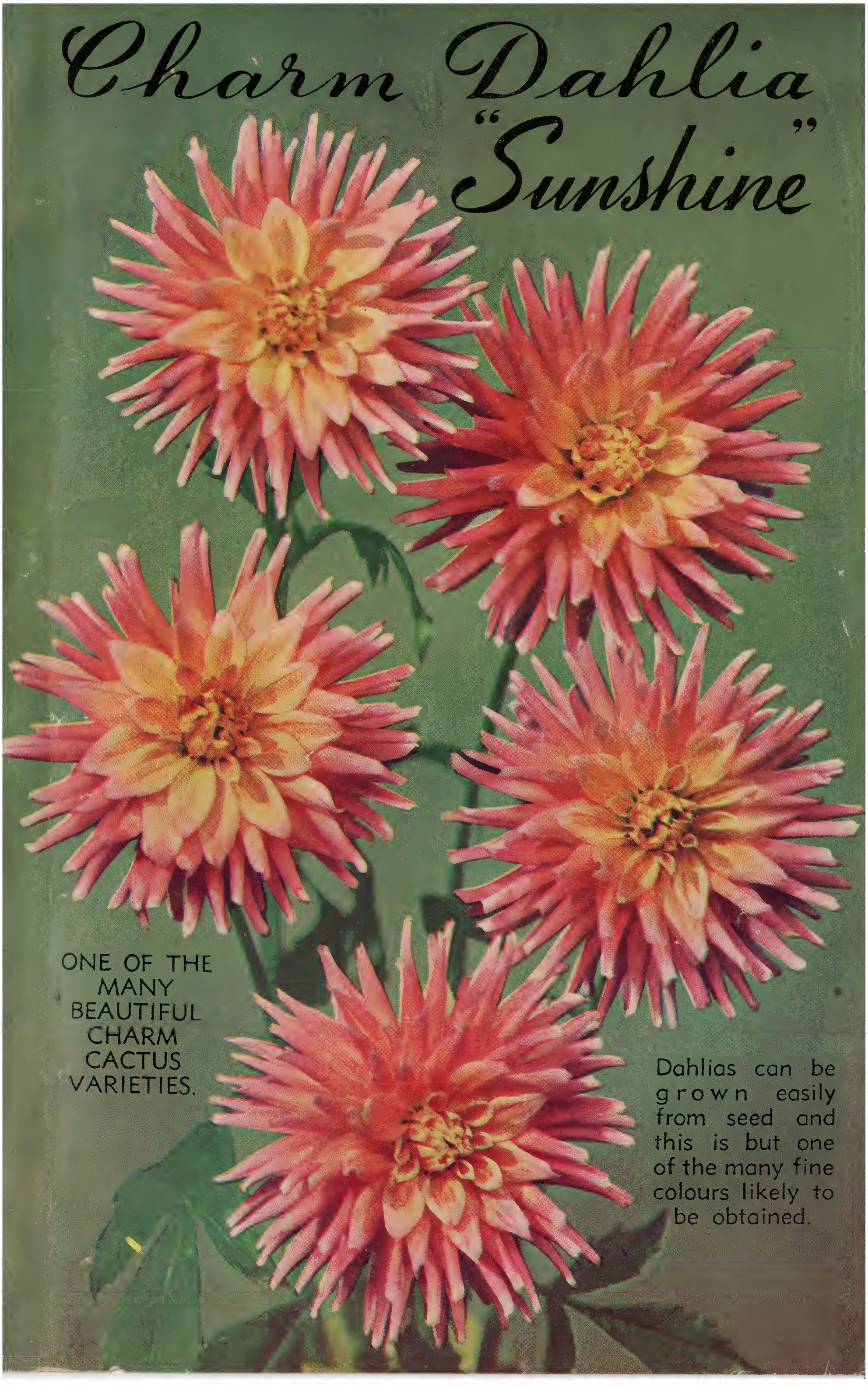
One of the common causes of losses through transplanting is the lifting of too many plants at one time and exposing them to wind which quickly shrivels the roots, followed by the drooping of the plant itself. It should be remembered that when growing naturally the roots of plants are never at any time exposed to wind.

**PROVIDING A NEW HOME:** Mark out the rows either with string or by making a straight line with a piece of batten, and commence planting so that the box of seedlings is on the left-hand side of you (for right-handed people). Use a small brick-



*Prepare another box for transplanting.*

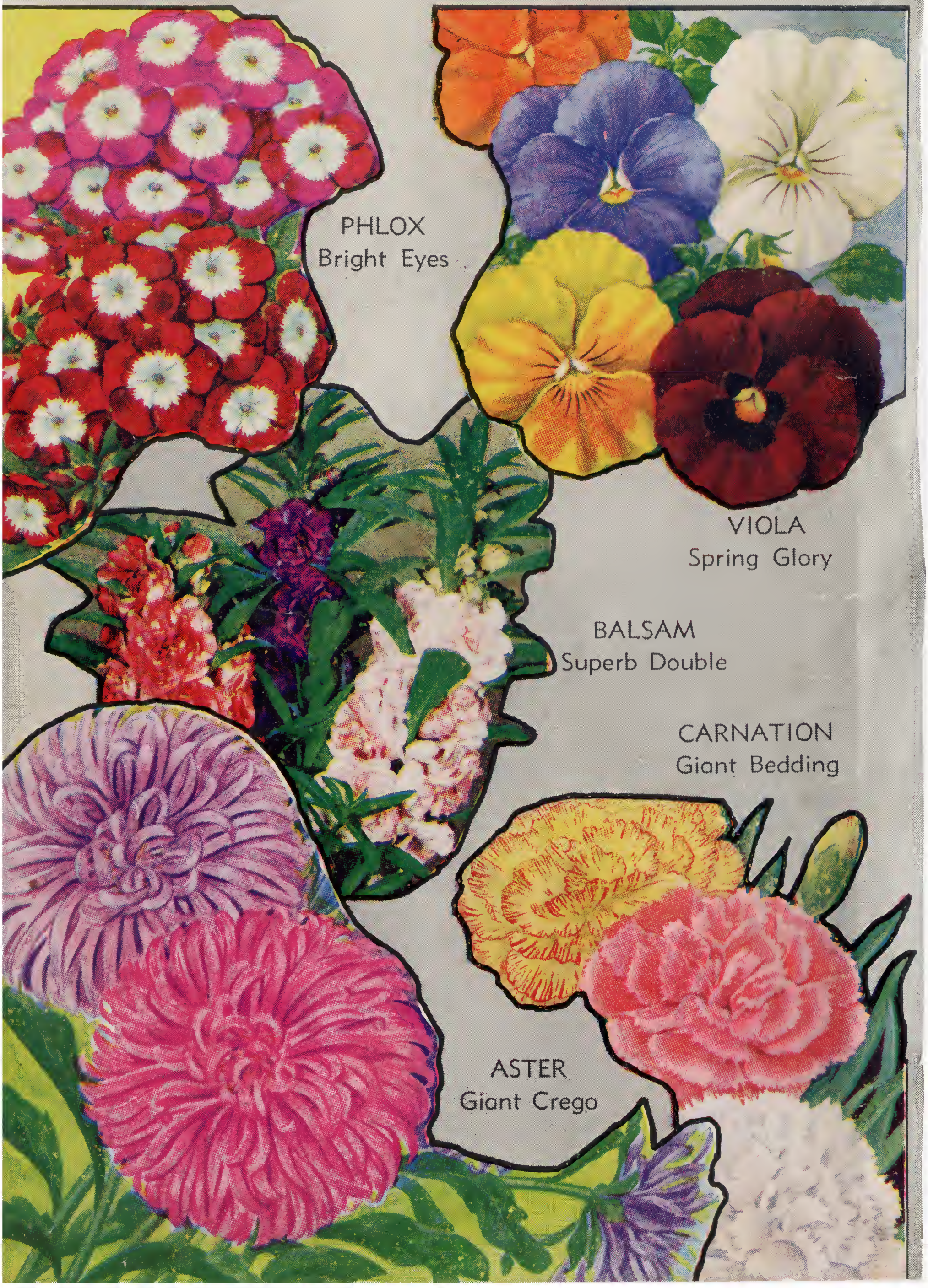
# Charm Dahlia "Sunshine"



ONE OF THE
MANY
BEAUTIFUL
CHARM
CACTUS
VARIETIES.

Dahlias can be grown easily from seed and this is but one of the many fine colours likely to be obtained.

# *Easily Grown Favourites for the Home Gardener*



layer's trowel and grasp it in the right hand. The seedling to be planted is held by the stem just above the roots with the thumb and forefinger of the left hand. The trowel is held vertically and plunged point downwards on the planting line and the soil then drawn towards you. This will leave a straight wall of soil against which the roots are suspended with the left hand. The drawn-out soil is then pushed forwards, not downwards, against the roots, and levelled off with the fingers. Slight pressure can then be applied at the surface. Continue down the row in this way and after each row is planted give every plant about a pint of water.

**AFTER CARE:** Providing transplanting is done during the cool of the evening and plants are watered it should not be necessary to shade them, but if the following days are very hot they can be sheltered with leafy twigs, the ends of which are pushed in the ground so as not to damage the roots of the plants and so that the leaves give shelter to them. If the weather is showery there will be no need for watering, but during dry weather plants should be watered daily until they are established.

**CAUSES OF FAILURE:** Why do good germinating seeds sometimes fail to grow? Probably the most important reasons are: (1) Sowing too deeply; (2) over-watering; (3) not watering sufficiently when the seeds are germinating.

*"Pricking out" or transplanting.*

*Lift carefully with soil attached.*

The overcoming of these problems has already been discussed, but there are other less frequent reasons why seeds fail.

Ants will often take away seeds without the gardener knowing it, but if ants are seen on the seed beds it is fairly safe to say that they are taking seeds. To prevent this, moisten the sides of a jam tin with kerosene, pouring off any surplus, and tip the seeds out of the packet into the tin, shaking them about so that they become just tainted with the kerosene. Then sow in the usual way. Soil fumigants which discourage ants are sometimes available, and these are quite effective.

Snails and slugs are more easily combated nowadays with the introduction of very efficient baits made from Metaldehyde.

**SPECIAL NOTES ON VEGETABLE SEEDLINGS:** The raising of Vegetable seedlings is much the same as for Flowers, but in many instances they are sown direct into the beds where they are to remain until they crop. Moreover, some Vegetable seedlings do not transplant easily, and it is definitely a risk to transplant them.

The following varieties can be sown either in seed beds and transplanted, or direct into the garden:—

Beet, Lettuce, Spinach, Onion.

If not transplanted they must be thinned out to the right distance apart.

Some varieties are almost always sown direct, and these are Cucumber (and all Vine crops), Beans, Peas, Sweet Corn, and Broad Beans. Then there are others which, although they are sown direct, must be thinned out. These are Carrot, Parsnip, and Radish.

**OPEN GROUND SOWINGS:** Whilst it is not usually possible to provide seed bed conditions for seeds sown in the main bed, the aim should be to attain these as near as possible. If water is readily available there is no need to sow the seed any deeper than usual, but where it has to take its chance mainly on whatever rain is offering, there must be a better covering—say twice the normal depth. In home gardens where beds are usually no more than four feet in width, it is an easy matter to cover them with bags, hessian or tarred paper, so as to retain moisture. These, of course, must be removed immediately there are signs of germination.

**FRAMES AND HOT BEDS:** Hot beds are not widely used in this country, mainly because of the warm climate. They have value in very cold districts where the early raising of seeds during the late Winter or early Spring months is desirable. On the other hand cool frames, which are not very well named, as their purpose is to provide extra warmth, could be more widely used in places where there are Winter frosts.

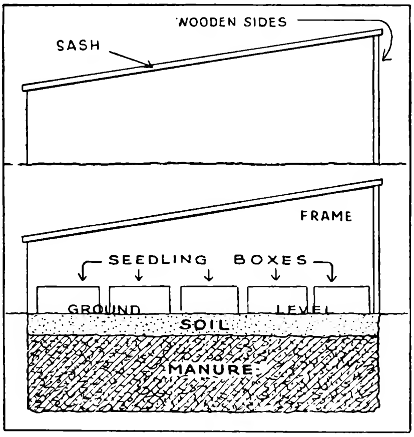
**COOL FRAMES:** These are easily and simply constructed by anyone who can use a saw and hammer. They consist of four wooden sides made from one-inch timber and shaped so that the "roof" has a fall of approximately 3 inches. Suitable measurements are 15 inches at the back and 12 inches at the front, as illustrated. A glass frame, or an old window sash will do to form the top, and this is either hinged or left loose so that it can be lifted for ventilation. A useful size for a cool frame is 3ft. x 4ft. but this should be varied to suit the seed boxes used or whatever old window frame can be obtained. Bricks or concrete, of course, make a much more satisfactory and permanent job, although the wooden frame is more convenient if it is desired to shift it from time to time. It is merely stood on the ground or on a base of ashes on which the seed boxes can rest. Sometimes the seed boxes are dispensed with and the ground itself within the frame built up and used as a bed. In such frames not only can early seedlings be raised, but many cuttings, particularly Carnations, are successfully "struck."

Ventilation is necessary once the seeds have germinated, or at all times for cuttings. During the daytime one edge of the sash should be lifted about 2 inches and as the young plants develop more ventilation can be given to harden them. Each night the frame is closed unless the weather is warm.

An important point in a cool frame, or for that matter a hot bed, is that the glass should be no more than 6 inches from the top of the seed boxes or bed at the lower end and 9 inches at the back. Otherwise the glass will tend to "draw" the seedlings, resulting in weak, leggy plants.

**HOT BEDS:** The principle of these is similar to the cool frames, but to provide extra warmth a hole is dug and filled with fresh manure which generates sufficient heat long enough to maintain tender seedlings until the weather warms.

A useful size for the bed is 4 by 5 feet and these measurements are

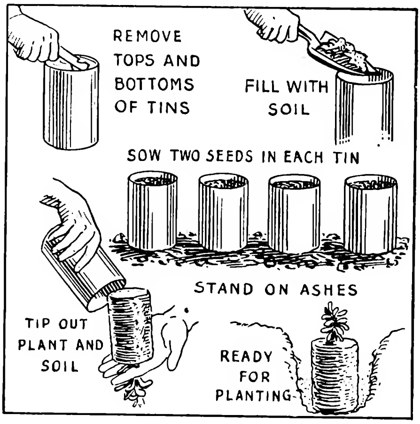


*Simply-constructed hot and cool frames.*

marked out on the ground, after which the soil is removed to a depth of 12 inches. A frame identical to that described for cool frames is then fitted around the edges of the bed, which is now ready for filling with a 12-inch layer of fresh manure. This is built up gradually in 3-inch layers and well trampled. When it is firmly packed down it is covered with a 3-inch layer of soil. After this it will commence to ferment and generate heat. The temperature will quickly soar to well over 100 degrees fahrenheit, but will then gradually recede. The glass frame can then be fitted over the top. Testing is carried out with a thermometer which is inserted into holes made by stakes in two or three different parts of the bed. Testing should continue for about two days and when it remains around 80 degrees fahrenheit, the frame is ready for use. Seed boxes or pots, according to the plants grown, are stood on the ashes which should cover the floor of the frame. The glass cover helps to maintain an even heat within the frame but must be raised gradually for ventilation as the plants grow.

**OTHER HINTS ABOUT EARLY SOWINGS:** Most seedlings raised in frames or hot beds can be safely transplanted into the garden once the danger of frosts is over. Others, however, resent transplanting unless the whole of the soil in which they are growing is taken with them. Melon, Cucumber, and all Vine crops come in this category and there are many ornamental flowering plants which fail to grow if their roots are disturbed.

One economical method is to collect small fruit or jam tins from which the tops and bottoms are cleanly removed by the latest type of tin-opener, or cutting them above and below the rims with tin snips. These cylinders are then stood on the ashes in the frame and filled with good loam, such as would be used in seed boxes. Two seeds are sown in each tin and if both germinate the weakest can be removed. Plants are allowed to grow until it is warm enough to transplant them into the open ground, when the cylinder is removed, as illustrated here. The aim is to retain the complete block of soil in which the plants have been grown and transfer them to the open ground without root disturbance. In this way the plants receive no check through transplanting and they are already well grown at a time when, without a frame, the seed would be only just sown.


REMOVE TOPS AND BOTTOMS OF TINS
FILL WITH SOIL
SOW TWO SEEDS IN EACH TIN
STAND ON ASHES
TIP OUT PLANT AND SOIL
READY FOR PLANTING

*Cucumbers and other Spring crops can be sown early by using this method.*

*"When the world wearies, and society does not satisfy, there is always the Garden."*

## CHAPTER 6.

# THE VEGETABLE GARDEN.

**With an understanding of soil preparation, manuring and digging, the home gardener is well on the way to the successful growing of vegetables. The general principles are more or less the same for all, but as each variety or type is not entirely the same in their requirements, it will be necessary later on in this chapter to deal with them separately.**

**To make the cultivation of vegetables easier and more convenient there are some hints learned by experience which will no doubt be appreciated by beginners.**

### SITUATION.

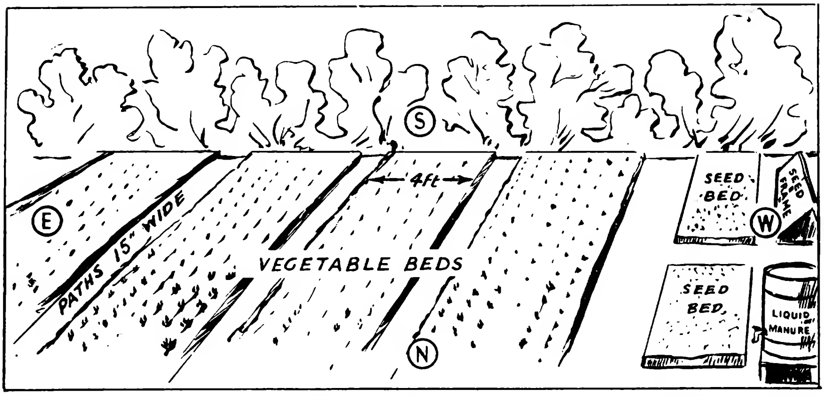
Perhaps the most important ingredient in the making of a vegetable garden is to ensure that it receives all the sun possible, particularly the morning sun. This necessitates a position open to the north or north-east without any buildings or trees likely to cast heavy shade.

On the southern and western sides it should be bounded by some shelter, preferably a paling fence or similar construction which will act as a complete wind-break.

Where there is natural shelter, such as a hedge, there will be great danger of such plants robbing the vegetable garden of necessary food and moisture, and it should be remembered that Privet plants, for example, will often send their root system as far as 10 feet in search of food and moisture. Other plants are less vigorous but it is impossible to give a suggested distance separating the vegetable garden from such plants. If there is no alternative the best has to be made of what is available and if there is intrusion of the roots of such trees, these may have to be cut from time to time by deep digging. Some gardeners have gone to the trouble to put down a concrete wall so as to prevent the intrusion of roots. To be effective, such walls would have to be up to 2 feet deep and made of good concrete.

Where a garden is exposed to strong winds and there is no available shelter, temporary wind-breaks can be provided by growing some suitable plants. In Summer, climbing Beans and Sweet Corn can be used. In Winter, a good thick "hedge" of Tall Lupins will not only give protection but also some flowers for the house. See illustration page 217.

In short, it should be fully understood the enormous effect that wind has on crops and, with this in mind, most gardeners are able to use their initiative in preventing their efforts being spoiled by such causes.



*Suggested layout for the vegetable garden. The wind-break should be on the south side and also, if possible, on the western side. There should be no obstruction from the north, but if it is desired to separate from the flower garden, a dwarf hedge not more than 2 feet high is permissible.*

*Note the bordering of the beds for this fine crop of Silver Beet.*

It will also be found an advantage if beds run from north to south so that the rows of vegetables also run in this direction and receive a maximum amount of sunlight in between them.

In heavy loams it will be found a decided advantage particularly for Winter beds if they are built up higher than the surrounding soil. This can be done by digging deep beds and throwing the surplus soil on to the beds to be afterwards levelled out.

### SIZE OF BEDS.

This will, to some extent, be determined by the area that is being used. It will be found much more convenient if these are made not more than 4 feet wide with paths on either side. This enables weeding and cultivating, etc., to be done from both sides without treading on soil. It will be found a tremendous advantage if the sides and ends of the beds can be supported with boards, or better still, by concrete borders.

In ground where there is a heavy slope it will be always be found that the higher ground is preferable for Winter vegetables and where possible crops should be arranged so that this portion can be used during the colder months.

### WATERING.

Ordinary sprinklers are not altogether satisfactory for the vegetable plot because there are times when certain crops do not require water, whilst others need plenty. Moreover, such crops as Tomatoes are not usually watered by overhead sprinklers. With most types of sprays it is not possible to confine the water into one particular area. If beds are level it is fairly easy to water at the roots by tying the end of a hose in a bag which is laid on the surface soil and enabling the water to be distributed fairly evenly among the plants. However, for all overhead watering, the type of spray which has several "nipples" spaced along a length of pipe is probably the best. When available, these can be secured in lengths up to 15 feet, but usually it is most convenient to have one equal to the length of the beds.

### PREPARING THE SOIL.

Dig over the ground only when it is in good friable condition, never when it is sodden. Leave in rough condition but make the surface fine prior to planting. Keep the sub-soil down where it belongs and give lime, say, every twelve months. Do not lime at the same time as manures and fertilisers are applied, but at least three weeks before or after.

Use only rotted manures, but if fresh manure only is available work this into the ground some four weeks or more before planting and keep the soil moist.

If 4 inches of animal manure or 2 inches of fowl manure are used, artificial fertilisers can usually be dispensed with, except as stimulants after planting.

Root crops should not be planted within three months in newly manured ground. It is therefore better to grow another crop, such as Cabbage,

Superphosphate is the most important of all artificial fertilisers for vegetables. Use it at the rate of one or two ounces to the square yard, raking it in prior to planting. Fertilisers should not come in contact with seeds but should be raked into the soil beneath them.

# VEGETABLES FOR HEALTH.

Most people are well aware that vegetables, particularly those freshly gathered, are "good for us."

There is, however, an increasing demand for more precise information on this subject, and this is no doubt partly due to the fact that home gardeners desire to grow those vegetables from which they will obtain the most food value. To enable comparisons of food values between different vegetables to be made, a table has been included on page 39, and for much of the information in this section, and in the table, we are indebted to the N.S.W. Department of Health.

A brief summary of the more important components of vegetables and why they are necessary for bodily health will no doubt be helpful to those who are seeking a little more knowledge on the subject. Vitamins A, $B_1$, and C only are mentioned. Other vitamins do exist, but if meals and diet are planned for a regular supply of the first three, it can be said fairly accurately that the remainder will also be assimilated in sufficient quantities.

## VITAMIN "C."

Most vegetables, as the table shows, are a valuable source of vitamin "C". It is not derived in sufficient quantities from the other foods that we eat and it is necessary to rely almost entirely on vegetables and fruits for a regular supply of this necessary vitamin.

Vitamin "C" helps to build up bodily resistance to infection, makes for sounder teeth and gums, and is essential to maintain bodily "tone". It is not stored in the body and must therefore be supplied daily by a regular intake of the fruits and vegetables that contain it.

Unfortunately, it is rather elusive but with a little care it is possible to ensure that only a minimum amount is lost from the vegetables we eat. That is why fresh vegetables from one's own garden are so desirable; for instance, at ordinary temperatures Lettuce may lose 50% of their vitamin "C" content within a matter of hours after cutting and the loss in other leafy vegetables is similarly rapid. Over-cooking of vegetables also means the loss of vitamin "C" and the best method is to cook quickly with as little water as possible.

Tomatoes, which could be more correctly termed a fruit, fortunately lose very little of their vitamin "C" when stored, cooked or preserved.

## VITAMIN "A".

This valuable vitamin is provided in vegetables by Carotene which, as the chart indicates, is contained in those varieties which are green or yellow in colour. It is named after the yellow colouring in Carrots which are richly endowed with Carotene. Unlike vitamin "C", it is not affected by cooking or dissolved in cooking water and the body can store it for future use.

Vitamin "A" is also important to bodily health, assisting the efficiency of the eyesight and protecting the linings of the nose, throat and lungs, etc.

## VITAMIN "$B_1$" (THIAMIN).

This also is an important vitamin for bodily health, being necessary for normal functioning of nerves and the correct utilisation of sweet and starchy foods. There are, of course, other sources of vitamin "$B_1$" besides vegetables which, in the main, have it in only limited amounts.

## OTHER COMPONENTS.

Vegetables also contain Carbohydrates (starches and sugars), Proteins, Calcium and other minerals, all of which are very essential. These, however, are mainly derived from other foods we eat and those absorbed by eating vegetables are actually supplementary but none the less valuable.

Green leafy vegetables also provide Riboflavin, without which there is always evidence of skin and eye disorders with, perhaps, premature ageing.

Those interested in learning more on this subject should write to their nearest Department of Health. The Department of Public Health of N.S.W. publishes a handy booklet, "Food and Nutrition," which is available free.

## VITAMINS IN VEGETABLES.

In the table below, comparisons can be made between the relative values of vegetables for each of the three important vitamins.

For example, the amount of Carotene (which gives vitamin "A") in Carrots is amazingly higher than in Beans and, as the dots show, the proportion is actually 50-1. With vitamin "$B_1$", the length of the lines shows the proportion is somewhere near the same. In vitamin "C", actual figures are given and these were obtained from samples of the uncooked edible portion of each vegetable, approximately 3 ounces, representing an average serving.

"Nil" indicates no content; "— —" indicates there is no reliable data.

| VEGETABLE | PRO-VITAMIN "A" (Carotene) | VITAMIN " BI " (Thiamin) | VITAMIN " C " (in Milligrams) |
|---|---|---|---|
| ASPARAGUS | ❙❙ | ████████████████████ | 60 |
| BEANS BROAD | - - | - - | 30 |
| „ FRENCH | ❙ | █████████ | 20 |
| BEETROOT | Nil | ████ | 10 |
| BROCCOLI | ❙❙❙❙ | █████████ | 72 |
| BRUSSELS SPROUTS | ❙ | ██████████████ | 100 |
| CABBAGE | ❙❙ | █████████ | 58 |
| CARROTS | ❙❙❙❙❙❙❙❙❙❙❙❙❙❙<br>❙❙❙❙❙❙❙❙❙❙❙❙❙❙<br>❙❙❙❙❙❙❙❙❙❙❙❙❙❙<br>❙❙❙❙❙❙❙❙ | ███ | 5 |
| CAULIFLOWER | Nil | ███████████ | 70 |
| CELERY | Nil | ██ | 5 |
| CORN | - - | - - | - - |
| CUCUMBER | Nil | ████ | 10 |
| EGG PLANT | - - | ██████ | 2 |
| KALE | ❙❙ | ██████ | 130 |
| LEEKS | ❙ | ███████ | 20 |
| LETTUCE | ❙❙❙❙❙❙❙❙ | ████████ | 15 |
| MARROW | Almost Nil | ████ | 5 |
| MUSHROOMS | - - | █████████ | 0 |
| ONIONS | Nil | ███ | 10 |
| PARSLEY | ❙❙❙❙❙❙❙❙❙❙❙❙❙❙<br>❙❙❙❙❙❙❙❙❙❙❙❙ | ██████████████ | 200 |
| PARSNIP | Nil | ██████████████ | 10 |
| PEAS | ❙ | █████████████████████<br>██████████ | 30 |
| PEPPERS | - - | - - | 447 |
| POTATOES | Nil | ██████████████ | 15 |
| PUMPKIN | ❙❙❙ | - - | 10 |
| RADISHES | Nil | ██ | 30 |
| SILVER BEET | ❙❙❙❙❙❙❙❙❙ | - - | 30 |
| SPINACH | ❙❙❙❙❙❙❙❙❙❙❙❙❙❙<br>❙❙❙❙❙❙❙❙❙❙❙❙❙ | ███████████ | 65 |
| SWEDE | Nil | ████ | 40 |
| SWEET POTATOES | Nil | ██████████████ | 23 |
| TURNIPS | Nil | ████ | 25 |
| TOMATOES | ❙❙❙ | ██████ | 22 |

# VEGETABLE SEED SOWINGS AT A GLANCE.

This table has been designed to assist mainly the home gardener but will no doubt also be valuable to those who cultivate rather larger areas than the average-size building block. The recommendations are approximate only and your own experience and that of others under local conditions are always valuable as a guide.

The time required for vegetables to reach maturity varies according to the variety, and the time of the year, and is calculated from the time of transplanting or, if direct sowings are made into permanent beds, from the time of sowing.

The depth to plant depends on the type of soil and whether water is freely available for keeping the ground moist after sowing. Deeper planting is necessary when the weather is dry and hot, or if rainfall only is depended upon.

**IMPORTANT: Measurements between rows are given mainly for home garden conditions and not for market gardens, where mechanical or horse-drawn implements are used. Under such circumstances, greater spacing would be necessary. Commercial growers are advised to write for our leaflet "Vegetable Seed Sowings."**

**In using this table local experience should always be taken as a guide.**

For time to sow, see cultivation notes of vegetables in this Chapter, and also Chapter 15; also "When to Sow" on page 42.

| Vegetable | How Usually Sown or Planted | Amount to Sow 100 feet of Row | Amount to Sow an Acre | Between Rows (in feet) | Space (in inches) Between Plants in the Rows | Depth to Plant (in inches) | Approx. time Till Mature (in months) |
|---|---|---|---|---|---|---|---|
| **Artichoke (Jerusalem)** | Drills | 80 tubers | 4-6 cwt. tubers | 3 | 15–18 | 6 | 9 |
| **Beans, Dwarf** | Drills | Small seed. 1 lb.<br>Large seed. 2 lb. | Small seed, ½-¾ bus.<br>Large seed. 1 bus. | 1½–2 | 4–6 | 1–2 | 2–2½ |
| **Beans, Climbing** | Drills | ½ lb. | ½ bus. | 4–6 | 6 | 1–2 | 2½–3 |
| **Beans, Broad** | Drills | 1½ lb. | 1-1½ bus. (60-90 lbs.) | 2–3 | 6–9 | 2–3 | 4½–5 |
| **Beet** | Drills and thin out | 1–1½ oz. | 6–10 lb. | 1–1½ | 4–5 | ¾–1 | 2–3 |
| **Beet, Silver or Spinach** | Drills and thin out | 1 oz. | 5–8 lb. | 2 | 6–9 | ¾–1 | 2–3 |
| **Brussels Sprouts** | Transplanted | 50 plants | ½ lb. | 2–2½ | 18 | ½ | 5–6 |
| **Cabbage (seed)** | Transplanted | Packet | ½ lb. | 1½–2½ | 15–30 | ½ | 2½–4½ From planting out |
| **Cabbage (plants)** | In rows | 60–100 plants | 7–12.000 plants | 1½–2½ | 15–30 | — | 2½–4½ From planting out |
| **Carrot** | Drills and thin out | ½–¾ oz. | 3–4 lb. | 1–1½ | 3–4 | ½ | 2½–3½ |
| **Cauliflower** | Transplanted | 40–50 plants | ½ lb.. 5–7.000 plants | 2½–3 | 21–36 | ½ | (See varieties) |
| **Celery** | Transplanted | 200 plants | 4–6 oz. | 2 | 6–8 | ¼–½ | 5–6 From sowing |
| **Egg Plant (plants)** | Transplanted | 50–70 plants | 5–7,000 plants | 2½–3 | 24–30 | — | 4–4½ |
| **Kohl Rabi** | Transplanted | ¼ oz. | 2–3 lb. | 1–1½ | 4–6 | ½ | 2½–3 |
| **Lettuce** | Drills and thin out or Transplanted | ½ oz. | 2–3 lb. | 1–1½ | 9–12 | ¼–½ | 2–3 |
| **Onion (seed)** | Drills and thin out | ½–1 oz. | 3–4 lb. | 1–1½ | 3–5 | ½ | 7–9 |
| **Onion (plants)** | In rows | 200–300 plants | 40–60.000 plants | 1–1½ | 3–5 | — | — |
| **Potatoes (tubers)** | In rows | 14 lbs. | 6–8 cwt. | 2–2½ | 12–18 | 4–6 | 4–5 |
| **Parsnip** | Drills and thin out | ½–1 oz. | 4–6 lbs. | 1–1½ | 3–6 | ½–1 | 5–6 |
| **Peas** | Drills | 1 lb. | 1–1½ bus. (60–90 lbs.) | 2–2½ | 2–3 | 1–1½ | 3–4 |
| **Radish** | Drills and thin out or Broadcast | 1–2 oz. | 2 lb. per 500 sq. ft. | ¼–½ | 1–2 | ½ | 1–1½ |

| Vegetable | How Usually Sown or Planted | Amount to Sow 100 feet of Row | Amount to Sow an Acre | Between Rows (in feet) | Space (in inches) Between Plants in the Rows | Depth to Plant (in inches) | Approx. time Till Mature (in months) |
|---|---|---|---|---|---|---|---|
| Spinach .. .. .. .. | Drills and thin out | [illegible] oz. | 8–12 lb. | 1½–2 | 6–8 | 1 | 2–2½ |
| Sweet Corn .. .. .. | Drills | ½ oz. | 12–15 lb. | * 3–4 | * 12–18 | 1–2 | 3 |
| Sweet Potatoes (plants) .. | In rows | 50 plants | 5,500 plants | 3–4 | 24 | — | 4–5 |
| Tomato (seed) .. .. .. | Transplanted | Packet | 2–3 oz. | † 3–4 | ‡ 18–24 | ¼–½ | 3½–5 |
| Tomato (plants) .. .. | Transplanted | 40–50 plants | 4–7,000 plants | 3–4 | 24–36 | — | — |
| Turnip .. .. .. .. | Drills and thin out | ½ oz. | 2 lb. | 1–1½ | 3–6 | ¼–½ | 2½–3 |
| Turnip, Swede .. .. .. | Drills and thin out | ½ oz. | 1–2 lb. | 1½–2 | 4–9 | ¼–½ | 3½–4½ |

* See page 72 re "Block" planting; † staked and pruned plants 2½–3 feet; ‡ unstaked 4 feet apart each way.

## SUMMER VINE CROPS.

{Usually sown in hills or groups, about 6-8 seeds to each, and later thinned out to the number shown below, choosing strong, well-spaced plants.

|  | Amount to Sow an Acre | Spacing (in feet) |  | Number of Plants per Hill | Depth to Plant (in inches) | Approx. Time Till Mature (in months) |
|---|---|---|---|---|---|---|
|  |  | Between the Rows | Between each Hill in the Row |  |  |  |
| Cucumber .. .. .. .. | 2–3 lb. | 4–6 | 3–4 | 3–4 | 1–2 | 2–3 |
| Marrow, Bush .. .. .. | 3–4 lb. | 3–4 | 2–3½ | 1–2 | 1–2 | 2–3 |
| Marrow, Running .. .. .. | 2–3 lb. | 6–8 | 5–6 | 2–3 | 1–2 | 2–3 |
| Melon, Water .. .. .. .. | 1½–2 lb. | 6–8 | 6–10 | 3–4 | 1–2 | 3½–4½ |
| Melon, Rock or Cantaloupe .. .. | 1½–2 lb. | 4–6 | 4–6 | 3–4 | 1–2 | 3–3½ |
| Pumpkin .. .. .. .. | 1½–2 lb. | 8–12 | 10–12 | 2–3 | 1½–3 | 4–6 |
| Squash, Bush .. .. .. | 3–4 lb. | 3–4 | 2–3½ | 1–2 | 1–2 | 2–3 |
| Squash, Running .. .. .. | 2–3 lb. | 6–8 | 5–6 | 2–3 | 1½–3 | 3–3½ |

NUMBER OF PLANTS TO THE ACRE at Various Distances

| Distance Apart | Plants per acre (approx.) | Distance Apart | Plants per acre (approx.) | Distance Apart | Plants per acre (approx.) |
|---|---|---|---|---|---|
| 18 x 3 in. | 116,000 | 36 x 36 in. | 5,000 | 8 x 3 ft. | 1,800 |
| 24 x 3 in. | 87,000 | 42 x 12 in. | 12,500 | 8 x 6 ft. | 900 |
| 24 x 6 in. | 43,500 | 42 x 24 in. | 6,000 | 8 x 8 ft. | 700 |
| 30 x 3 in. | 70,000 | 42 x 36 in. | 4,000 | 12 x 6 ft. | 600 |
| 30 x 6 in. | 35,000 | 48 x 24 in. | 5,500 | 12 x 12 ft. | 300 |
| 30 x 9 in. | 23,500 | 48 x 36 in. | 3,600 | 16 x 6 ft. | 450 |
| 36 x 12 in. | 14,500 | 48 x 48 in. | 2,700 | 16 x 12 ft. | 225 |
| 36 x 18 in. | 9,500 | 60 x 36 in. | 2,900 | 16 x 16 ft. | 170 |
| 36 x 24 in. | 7,000 | 60 x 48 in. | 2,200 |  |  |

RUNNING FEET OF ROW PER ACRE at Various Distances

| Distance Between Rows | Running Ft. of Row per acre | Distance Between Rows | Running Ft. of Row per acre |
|---|---|---|---|
| 18 in. | 29,000 | 48 in. | 10,900 |
| 24 in. | 21,800 | 6 ft. | 7,300 |
| 30 in. | 17,400 | 8 ft. | 5,400 |
| 36 in. | 14,500 | 12 ft. | 3,600 |
| 42 in. | 12,400 | 16 ft. | 2,700 |

N.B.—Above calculations do not allow for headlands or other unused areas.

# WHEN TO SOW.

## ROOT VEGETABLES.

**(Beet, Carrot, Parsnip, Turnip.)**

**Cold and Warm Climates:** Sow from early Spring through to early Autumn. In cold climates leave time for them to mature before Winter stops all growth—in warm climates (where growth may continue slowly in Winter) they must be matured before "bolting" starts in September. Turnips and Swedes are best if maturity is reached during a temperate to cold time of the year—therefore sow in late Summer to Autumn and perhaps again in very early Spring. **Tropical Climates:** Sow February to August (Turnips in Autumn only).

## CABBAGE.

**Cold Climates:** Sow late May for Spring transplanting (over-Winter in seed beds, keep the plants small—don't force under glass, otherwise they may "bolt to seed" at first warm weather). Sow again from August until early February. **Warm Climates:** Sow all the year round; except that transplanting in late Autumn (late April and May) may, in cold situations lead to "bolting" before heading. **Tropical Climates:** Sow February to August.

## CAULIFLOWER.

Must be matured during temperate to cool conditions. In warm climates this means May to September; in cold climates, March to October. It is important to select the right varieties for the climate and season. Cauliflowers do not succed in the tropics.

## BROAD BEANS.

Sow from Autumn to early Winter. Not suitable for tropics.

## BRUSSELS SPROUTS.

Sow November to January; should be matured in late Autumn to Winter. Only successful in cool to cold climates.

## CELERY.

**Cold Climates:** Sow from early Spring to November. **Warm Climates:** From October to early January. **Tropical Climates:** Not generally suitable.

## LETTUCE.

**Cold Climates:** From early Spring to late Autumn. **Warm Climates:** Throughout the year. **Tropical Climates:** February to October.

## ONION.

**Cold Climates:** Sow from Autumn to early Spring. **Warm Climates:** From early Autumn to Winter; for the early sowings use only early varieties. **Tropical Climates:** Generally not suitable.

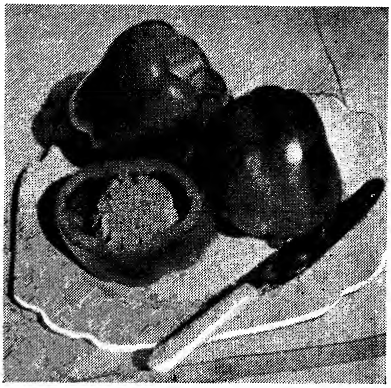
## PEAS.

**Cold Climates:** Sow from late Winter to mid-Summer. **Warm Climates:** From late Summer to early Spring. **Tropical Climates:** Not suitable.

## KINDS LIABLE TO FROST INJURY.

**(Beans, Potatoes, Sweet Corn, Tomatoes, Pumpkins, Marrows, Melons, Cucumbers, etc.)**

**Cold Climates:** From Spring (after all danger of frost is past) and onwards as long as they have time to mature before first Autumn frost. Melons will mature successfully only in Summer. Tomatoes for an early crop are sown in protected beds 6-8 weeks before last frost. **Warm Climates:** Same as for cold climates, except that Beans, Potatoes, Sweet



*Capsicums (or Peppers) are tremendously rich in vitamin "C" and the sweet varieties are very tasty.*

Corn will not "set" satisfactorily in mid-Summer where temperatures are very high. **Tropical Climates:** Any time except during the hot, wet season. Potatoes not suitable.

### CLIMATES.

**Cold Climates** are such as the New South Wales tablelands and western slopes and all Victoria south of the Murray Valley. **Warm Climates** are such as the New South Wales coast and western plains and most of southern Queensland. **Tropical Climates** are such as the north of Queensland, particularly the coast; and have no frosts. **General Note:** Within these broad groups there are many special situations which may be more favourable than the average, e.g., in a sheltered home garden Winter conditions may be less severe and less prolonged; in places adjacent to the sea frosts may never occur and mid-Summer temperatures will be kept cooler by the sea breezes.

# CULTIVATION NOTES OF ALL POPULAR VEGETABLES.

## Requirements — When to Sow — How to Sow — General Cultivation.

### ARTICHOKE.

**(Jerusalem and Globe)**

**JERUSALEM ARTICHOKES** are grown from tubers only, which are produced under the ground much in the same manner as Potatoes. They have a similar nutritive value and can either be boiled, baked or roasted. Sometimes they are grated and made into soup. Tubers for cooking are peeled or scraped under water to prevent discolouration.

Planting commences in August and continues to October, and they thrive in any deeply dug, average garden loam. Rows are spaced 2½ feet apart and tubers 18 inches apart, 6 inches deep. A separate plot should be reserved for them and they will continue to grow each year from a few pieces left in the soil.

Spring-planted crops are ready about February and tubers are dug as the top growth wilts. Two lbs. of tubers are sufficient for an area of approximately 15 feet x 10 feet.

**GLOBE ARTICHOKE** is propagated from seeds and the portion used for cooking is the lower part of the scales and their receptacle at the base of the flower. These are boiled until tender and eaten hot or cold with melted butter.

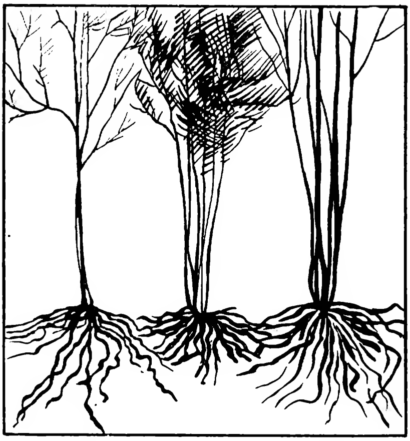
Sow seed in seed beds during Spring and when seedlings are ready space them 2 feet apart in rows with 3 feet in between.

They favour a well-worked garden loam and ample water during dry weather. At harvesting, the plants can be cut back to the ground level and may produce another crop if the season is long enough.

### ASPARAGUS.

More and more home gardeners are growing Asparagus, finding it a very pleasant alternative vegetable and not a difficult one to grow.

**Requirements:** A rich, well dug garden loam in a sunny position. Trench the land as described on page 8, and make up into beds 3, 4 or 6 feet wide, as convenient. Incorporate at least a 4-inch layer of rotted manure with the soil; three weeks before or after this lime thoroughly—8 ozs. to the square yard. Cow or poultry manure is ideal, but all animal manures can be used. If it is not desired to trench the ground, dig as deeply as possible. If trench-



*The centre plant is the ideal Asparagus seedling.*

ing or digging is done some two months before planting, so much the better, and lime immediately. Manure can be incorporated later.

Use a ready-mixed artificial fertiliser at the rate of 4 ounces to the square yard, or make up 4 lbs. Superphosphate, 2½ lbs. Sulphate of Ammonia and 1 lb. Potash. Use at the same rate. If plenty of animal manure is available the amount can be reduced accordingly, but the full amount is recommended where only compost is used.

**When to Sow:** Sowings are commenced as soon as the ground warms in the Spring. In temperate climates similar to Sydney this would be from September until November.

**How to Sow:** Make a good seed bed as described in the chapter on Seed Raising and cover seed to a depth of 1½ inches. Make the rows in the seed bed 12 inches apart and thin out seedlings to 2 inches apart. Allow them to remain until the first Summer growth is over, then select those with a reasonable number of sturdy stalks and discarding the thin, wiry seedlings as well as the very heavily wooded ones. Asparagus may also be grown from roots which can be purchased for planting from June to August. Seed is the most economical method but the roots ensure a crop in much less time. We recommend the two-year-old size.

**Cultivation:** Young seedlings, and even growing plants, require ample water, and the soil should never be allowed to dry out. At the same time good drainage is necessary, for they will not stand soil that remains saturated 24 hours after heavy watering or rain. Seedlings will yield their first cutting the third Spring after sowing and with two-year-old crowns, a light cutting may be possible one year after planting. In the intervening time plants should be allowed to make their full growth each year until the late Autumn or Winter, being cut down just prior to the full ripening of their seed. The first cutting of young shoots should be for only a short period and not extend for much longer than six weeks. The plants are then allowed to again grow unchecked until the stalks and heads are fully matured, when they are again cut down.

After this, the cutting period for the young shoots can be lengthened each season, reaching eventually the maximum of 10-12 weeks. To ensure that the plants are not exhausted it is better to undercut than overcut and if this practice is adhered to, beds will last for many years.

Most home gardeners will wonder why the Asparagus shoots that they cut are practically all green and not white like those bought in tins. The reason is, of course, that commercial growers mulch their beds very deeply with a mixture of animal manure and soil in the Spring. The shoots are then cut well under the ground. For home use, green Asparagus will be found better flavoured and more nutritive, so that it is advisable not to topdress so deeply—about 2-3 inches would be sufficient. To cut the shoots, push a sharp knife gently into the soil diagonally at the side of the shoot. The cut is made just at the top of the crown which, however, should not be injured.

After cutting, gently fork over the beds without damaging the crowns and topdress as already described. As a guide to when cutting should cease, watch the shoots and it will be noticed that they tend to become weaker and thinner.

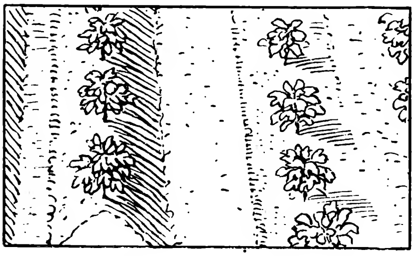
**Varieties—see page 230 for our recommendations.**

## BEANS.

Although the green Dwarf French Beans comprise the majority of home garden crops, there are other types which have great value for home use. For instance, Climbing Beans have a much longer cropping period than the Dwarf French, although they take a little longer from the time of sowing to produce their first pods. To ensure a continuous supply of Beans throughout the frost-free months, both Climbers and Dwarf French should be grown. In recent years there has been more interest in the Butter type of Dwarf French Beans, and with the introduction of improved varieties, there is no doubt that many more of them will be grown.

**Requirements:** Excluding Broad Beans (which are quite different) all Beans require similar soil conditions and treatment. Beans grow readily in a variety of soils, from sand to heavy loam, and practically any average garden soil is, or can be made. suitable for this crop. It is essential to avoid wet, low-lying spots where water does not get away freely after rain, and heavily shaded situations. A warm, sunny position is best and if possible shelter from strong winds. Rows should run from north to south, particularly for the Spring and Autumn crops.

A moderately rich loam suits them best but strong manures should be avoided. Ready-mixed fertilisers such as No. 5, have been found suitable for this crop and are much better than the home gardener endeavouring to mix his own requirements. Soil which has been previously heavily manured for a crop such as Cabbages will be found ideal, but if only unmanured soil is available a fairly generous quantity of well-rotted animal manure or compost can be dug in.



*Commence hilling Beans when about 6 inches high.*

*Climbing Beans give continuous pickings over a long period.*

The application of fertilisers is important. Two things should be avoided: putting the fertiliser too far away from the plants, or too close to the seed at the time of sowing. The best method is to mark out the rows and take out a shallow trench about 4 inches deep and 6 inches wide. Distribute the fertiliser along this trench, then replace about 3 inches of the soil. The ground is then ready for sowing. It is assumed, of course, that it has already been dug sometime previously.

The best method of sowing the seed is discussed in the section "How to Sow."

In a final word about the preparation of the soil, it should be emphasised that Beans thrive in well limed ground, and if no lime has been applied during the previous 12 months it is almost certain that the soil needs it. Allow about 8 ounces to the square yard, distributing this fairly evenly over the soil in the first digging.

**When to Sow:** Sowings can commence as soon as the ground has warmed up in the Spring and all danger of frost is over. This is about early September in Sydney, but it should be emphasised that these early sowings sometimes result in poor germination because the ground is still cold and Beans do not like such conditions. Sowings are then continued at regular intervals until the late Summer, and in districts similar to Sydney, early March is considered the latest time for sowing Dwarf Beans. Sowings of Climbing Beans would have to be discontinued a little earlier than this.

**How to Sow:** Assuming that the fertiliser has been distributed in a narrow band as described in "Requirements" and the soil replaced, the seed can now be sown. In each band sow two rows with about 3 inches between them and 4 inches between the seeds in the rows. This method is widely practised and helps plants in each row to support the other. Cover the seed with about an inch of soil or a little more if it will not be possible to water them regularly. Beans are amongst the most easily raised seeds, and usually germinate in from 7-14 days, according to the warmth in the soil. Failures are generally caused by sowing too deeply, drying out, or very hard compacted soil.

Climbing Beans should be sown in single rows with about 4 inches between seeds. They require some trellis work, wire netting, or similar construction on which to climb.

**Cultivation:** When the young Bean plants attain a height of about 6 inches they can be lightly hilled up and again when they are more fully grown. It is unlikely they will want further fertilising, although liquid manure at about flowering time will increase the crop. Sometimes a side dressing of Sulphate of Ammonia at the rate of one tablespoonful to every three feet of row is given. This is sprinkled fairly close to the plants and afterwards raked in, followed by a good watering.

All types of Beans favour regular watering and in hot weather without rain this is usually necessary once a week. Irrigation between the rows is good practice.

*A strongly constructed support is well worth the little extra trouble and expense involved and can be used each season. This is a splendid crop of Epicure.*

Even if you do not require all the Beans, keep them picked off regularly and so prolong the life of the plants. This is particularly true of Climbers.

**Pests and Diseases:** Rotation of crops will prevent the carry over of many soil-borne diseases to which Beans are subject. The **Bean Fly** lays its eggs under the skin of the stems where it is impossible to reach them with sprays or dusting powder. Some protection is possible by hilling up the soil around the plants. A spray that has shown its ability to control this pest is made up as follows:—½ oz. (fluid) Nicotine Sulphate, 2 ozs. (fluid) White Oil Emulsion, and 1¼ gallons of water. For Summer crops, six applications of the spray are recommended and approximately three for Autumn sowings. Spray the third day after plants appear above the ground and subsequently every four days. It is necessary to spray only the upper surface of the leaves.

**Varieties—our choice for Home gardens—see page 230.**

## BROAD BEANS.

Broad Beans provide one of the few "podded" vegetables for Winter use. Unlike French Beans they are not sown in the Spring and through the Summer but during the Autumn and Winter, withstanding very severe frost. They make a valuable addition to Winter meals and, served with white sauce, prove most appetising.

**Requirements:** These plants thrive in a fairly stiff soil and seem to prefer clay loams, but providing conditions are reasonable, will grow almost anywhere. They will resent extremely acid soil and to be on the safe side most soils should have a generous dressing of lime at the rate of about 4 ounces to the square yard. While they favour fairly cool conditions they are grown with considerable success in climates warmer than Sydney, but may be subject to disease if the soil composition is not favourable and there must be some attention given to drainage. Usually failure to set pods is caused by an over-abundance of fresh manure or artificial fertiliser containing too much Nitrogen. Avoid large quantities of Sulphate of Ammonia and Nitrate of Soda but give a dressing of Superphosphate, 1 ounce to the square yard. Over-shading from trees is another cause of failure.

**When to Sow:** In temperate climates commence in the Autumn and continue until mid-Winter (June in Sydney). In very cool districts with low Summer temperatures sow during Spring, but in sub-tropical areas only Autumn sowings are likely to be successful.

**How to Sow:** Make double rows 6 inches apart with 3 feet between each pair. With a suitable tool draw shallow furrows, say about 3 inches deep, and sow seeds along this, spacing them 6 inches apart. Cover with about 2 inches of soil and this will leave a shallow depression marking the rows and allowing the moisture to collect where it is most wanted—over the seeds. Ensure that the ground is kept moist until germination is complete.

**Cultivation:** Once the young plants are established they require only surface cultivation of the soil to keep down weed growth and sufficient water, if no rain, to ensure that the ground does not dry out. Mulching of leaf mould or compost 1 to 2 inches deep is also helpful. When they are 18 inches or more high they can be given a further dressing of Superphosphate, 1 ounce to each 6 feet of row. This should be distributed either side of the plants, making a band about 1 foot wide. Beans can be expected in the Spring and picking should be commenced immediately they are ready. Pods gathered when they are very young while the seeds are soft and milky can be used whole.

**Varieties our customers grow—see page 231.**

## BEET.

This widely-grown vegetable is one of the most important of Summer crops and freshly cooked Beet cut into attractive rings, form the basis of most good salads. For succulent tenderness there is nothing can equal fresh young Beets from one's own garden and with successive sowings it is possible to harvest them from late Spring until early Winter.

The idea that Beet have to be handled carefully lest they should "bleed" no longer holds good and many housewives find that they cook in half the time if they are cut into quarters.

**Requirements:** Beet favour a well dug loam in a sunny position and free from water that lies after rain. They can follow green crops such as Cabbage, Tomato or Lettuce and, unlike most root crops, favour manures with a fairly high Nitrogen analysis. This can be given in the form of rotted animal manure or as Sulphate of Ammonia, using about 2 ounces to every 6 feet of running row. Dig

*When spraying, turn the nozzle upwards to ensure that the undersides of the leaves are well covered.*

the soil thoroughly to the depth of the spade if possible to do this without lifting the subsoil. If likely to be deficient in lime, give a light dressing, 4 ounces to the square yard, and leave fallow for a week or two.

**When to Sow:** Commence in Spring and continue through the early Summer, following with more sowings in the Autumn. Mid-Summer sowings, except in moderate climates, are not likely to be successful. In warm climates that are practically frost free, Winter sowings are possible.

**How to Sow:** Beet seedlings do not transplant successfully and those that do "take" are not likely to make good headway. The best method is to sow the seeds where the plants are to remain. First mark out rows 15 inches apart, making a shallow furrow 1 inch deep. Firm the soil in the bottom of the furrow by lightly tamping it with the back of the rake. Sow the seed sparsely on the tamped ground and cover it with soil or leaf mould. Thoroughly consolidate the topping by pressing it firmly, and keep moist. Beet seed has a corky outer covering which is difficult for moisture to penetrate. It is an advantage, therefore. to soak it overnight before sowing.

**Cultivation:** As soon as the young seedlings are thoroughly established they should be thinned out to 4 inches apart and not left until they are half grown. Light surface cultivation to prevent weed growth should be a regular job but Beet must never be hilled up. Keep them growing by regular watering in dry weather and when about half grown they can be given liquid manure or a side dressing of Sulphate of Ammonia, 2 ozs. to every 6 feet of running row. They require this dressing once only but liquid manure can be given fortnightly.

Pests and diseases are almost unknown in the growing of this crop.

**Varieties which you will want to grow—see page 231.**

## SILVER BEET.

A well maintained patch of Silver Beet will ensure regular pickings of "greens" at times when the garden may be bare of other green vegetables. It is a welcome substitute for Spinach in warm climates and is a true Beet, although the growth is made in the leaves instead of bulbs. In some countries it is referred to as Swiss Chard.

**Requirements:** These are the same as for the red Beet, with perhaps the addition of even more manure or fertiliser. A 3-inch layer of good rotted manure dug in would not be too much, but not more than 2 inches of fowl manure.

**When to Sow:** During Spring and early Summer and again in the Autumn.

**How to Sow:** Sow in seed boxes or beds and the seedlings afterwards transplanted, but sowings direct where they are to grow are also possible. Cover seeds with about 1 inch of soil and keep moist. Whether thinned-out or transplanted, seedlings should stand about 15 inches apart in rows, with 20 inches between each.

**Cultivation:** This is the same as for red Beet but, to prolong the picking of a crop, give liquid manure regularly or side dressing of Sulphate of Ammonia.

Leaves should not be cut but pulled in the same way as Rhubarb. The stalks and leaves can either be cooked together or separately and the former are most appetising when served with white sauce.

**Varieties for the home garden—see page 231.**

## BORECOLE

This cool climate vegetable is probably better known as Scotch Kale or Curly Greens. As it needs severely cold weather with heavy frosts to give it flavour it is not very widely grown in this country, but is occasionally seen on the Tableland areas and in the southern States. Loose curled leaves form on the stalks from the bottom of the plants up and are pulled as required.

**Requirements:** Identical with Cabbage.

**When to Sow:** From late Spring until early Summer (approximately November to January).

**How to Sow:** See Cabbage.

**Cultivation:** Plants require similar treatment to Cabbage. The curled leaves are usually ready for use about five months after planting and will grow again after pulling. Tops are also used for cooking.

**What varieties should you grow? —see page 231.**

## BROCCOLI.

Practically the only kind of Broccoli now grown is Green Sprout or Non-Heading type, which is gaining popularity with home gardeners every year. They like it because it is easy to grow and, served with white sauce, it makes such a delectable dish. The "flower" heads have a resemblance to Cauliflower, except that they are green, more "open" and much more easily grown.

The white Broccoli (Late White) which was the forerunner to our modern Australian Cauliflower is now very little grown.

**Requirements:** They grow well in a loam prepared much in the same way as it would be for Cabbage and, whilst it need not be over-rich, it should have a good proportion of rotted manure or compost incorporated with it. If the latter is used, add 1 tablespoon of ready mixed fertiliser to each square yard. Like nearly all vegetables, they favour a sunny position sheltered if possible from the south and west.

**When to Sow:** In districts similar to and warmer than Sydney, sowings commence in December and continue until February, but in cold districts they should start in November and finish by the end of December.

**How to Sow:** In seed beds or boxes and treat the same as Cabbage. Cover the seeds with about ⅛ inch fine soil or leaf mould, press down firmly and keep moist. If seedlings are too crowded, either thin them out to about 1 inch apart or prick out into another bed, as described in Chapter 5.

**Cultivation:** As soon as they are large enough to handle, transplant to the permanent positions already prepared, marking out the rows 20 inches to 24 inches apart. Space the seedlings 18 inches apart in the rows. Keep them growing by regular watering in dry weather and, once established, give fortnightly applications of liquid manure. The addition of Sulphate of Ammonia, 1 teaspoonful around plants when half grown will ensure that they "keep moving."

First pickings are usually possible four months after planting and can be continued for some weeks, new shoots re-forming from where the old have been cut. Shoots are ready when they have a soft, mossy appearance, but they will soon break into green flower heads, which are not at all appetising. Cook in the same way as Cauliflower and serve with melted butter or white sauce.

**Start with suitable home-garden varieties—see page 231.**

## BRUSSELS SPROUTS.

Although these, too, are regarded as a cold climate vegetable, they are grown with success in some temperate regions, particularly in climates a little cooler than Sydney. Good Sprouts are those which experience a warm initial growing period, followed by cold weather and heavy frosts. Under such conditions they form hard, tight hearts a little smaller than a golf ball, and are most appetising.

**Requirements:** These plants thrive under similar conditions to Cabbage, see page 50. They favour a deeply dug, fairly rich loam in a well-drained position.

**When to Sow:** In cool climates—November and December; in temperate zones—December and January. Later sowings than these are not usually successful because they do not allow the plants a long enough growing period before the onset of the cold weather, which is needed to "ripen" the Sprouts.

**How to Sow:** Adopt the same methods as for Cabbage and ensure that the seed is not sown too deeply. Cover with about ⅛ inch soil.

**Cultivation:** Mark out rows 2 feet apart and leave 20 inches between seedlings in the rows. Water regularly during dry weather or plants will receive a check which will later impair the harvest of Sprouts. When about half grown give fortnightly applications of liquid manure and, say, one side dressing of Sulphate of Ammonia, allowing one teaspoonful to each plant.

Sprouts form on a thick trunk about 2 feet long, commencing almost from the ground and finishing just under the top leaves. They should be picked before they burst and cooked the same as Cabbage. The "tops" can also be used for cooking when all Sprouts have been harvested.

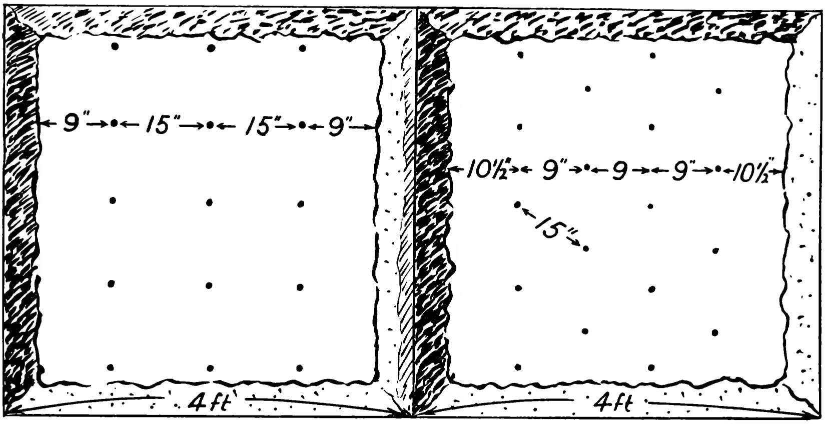
**Grow a good variety—see page 231.**

## CABBAGE.

The most widely grown of all green vegetables and so well known that very little description is necessary. What is perhaps not quite so widely understood is that freshly-cut Cabbage from one's own garden are possible for many weeks and that the choosing of varieties to be planted at the right time is a most important factor in growing them successfully. When this is done, Cabbage proves one of our most easily grown vegetables. See "When to Sow."

*When thinning, avoid soil disturbance by pulling sideways.*

**Requirements:** The aspect of the Cabbage bed will largely depend on the positions available, but they require a sunny, well-drained spot. If the soil has previously been deeply dug for other crops, there will be no need for further deep digging. Land which has not been used for some time, however, should be thoroughly dug over some weeks before planting and, for preference, trenched in the manner described on page 8. If it has not been limed within the previous twelve months an application up to 8 ounces per square yard will help to put it in better condition. This can be applied when the land is dug or at least three weeks before the inclusion of manures in the soil. Ready mixed fertilisers suitable for this crop are available, but for those who prefer to mix their own, the following has been found satisfactory: 1 lb. Blood and Bone, 1 lb.



*ALTERNATE PLANTING.*

*The above illustrations indicate how space can be saved by this method. The drawing on the left is the usual method of planting and if the beds are 20 feet long with plants 12 inches apart in the rows (3 rows to a bed), there would be 60 plants to a bed 4 feet wide. By alternate planting with the plants still 12 inches apart in the rows, an extra row is gained, together with a little more distance on the edges, but plants still have sufficient spacing between them, thus there would be a gain of 20 plants in the same size bed (20 feet long).*

Superphosphate, 2½ ozs. Sulphate of Ammonia, 1½ ozs. Sulphate of Potash. This is distributed at the rate of 2 ounces to the square yard. If ample rotted animal manure is available the fertiliser can probably be dispensed with altogether or used at half the suggested rate. An "ample" quantity would be a 4-inch layer dug into the soil.

**When to Sow:** In temperate climates the sowing season extends roughly from December to July, and in most districts Cabbages are most easily grown from a mid to late Summer sowing, or from an early Spring sowing, thus maturing in temperate weather. In inland areas, late Spring sowings are also possible if there is fertile soil and ample moisture. This means the heads mature in the hot weather. In very cold climates they must be sown early November or December for them to mature by Winter, but the time of this sowing is somewhat governed by the period taken for maturity of the variety grown. Where Winters are mild (i.e. free, or practically free from frost) they can be successfully headed right through to late Spring from Winter sowings. Most home gardeners are seeking the early varieties of Cabbage which are more easily grown and occupy the ground for a much shorter time. They are also ample size for the average household. Sowings of these early varieties are possible in the Spring, so that plants are ready before the hot Summer. Further sowings are started in the late Summer for maturity before mid-Winter.

**How to Sow:** Prepare seed beds or boxes as described in Chapter 5, making certain that seedlings are not too crowded, first sowing sparsely and then thinning out or even pricking out into small beds before finally transplanting. Crowded seedlings are usually "leggy" and soft, and when transplanted need considerable care. Generally, they receive a check from which the plants never fully recover. Covering for the seed after sowing should be about ⅛ inch sifted loam or leaf mould. Under favourable conditions germination can be expected in from 7-10 days.

**Cultivation:** Keep Cabbages and surrounding beds weed-free by regular, shallow cultivation of the surface. This is best done when the weeds first appear. If neglected, considerable damage can be caused to the root system of the plants because of the deeper cultivation necesssary to pull large weeds, and plants are often badly checked.

Seedlings can be transplanted when 3-4 inches high, although many gardeners find they achieve far better results by leaving them until they are 6-8 inches high or more, and then planting the seedlings very deeply. Spacings are as follows:

Small varieties—15 inches between rows with plants 12 inches apart.

Large varieties—20 inches between rows with plants 18 inches apart.

Once established, water regularly in dry weather, usually once a week, when they should have a thorough soaking. Give liquid manure fortnightly and as they commence to head-in, weekly. Allow about 1 quart of this to each plant. A dressing of fertiliser mixed as above, or Sulphate of Ammonia, 1 teaspoonful to a plant, will ensure they keep growing.

Cabbages are ready for picking when the heads fail to yield to pressure from the hand. Left longer than this they are likely to burst or split, although some varieties, such as Yates' Select Succession, are capable of standing longer than others.

Cabbages usually "run to seed" because they are sown out of season.

*Among the larger Cabbages, Yates' Select Succession is a proved home garden variety.*

**This plant has two natural stages;** the first during which the heart is normally formed and the second when the flower stalk begins to burst the head as it grows up through it. Cabbages for culinary use must be picked well before this stage commences and the natural climatic conditions are a warm period followed by cold which checks the growth and enables the Cabbage to be cut. That is why Cabbages are seldom successful when sown in the cold weather and grown on into a period of warm temperatures.

However, as already outlined in the section "When to Sow," it is possible to make sowings in the early Spring, when the ground is warming up, and successfully grow Cabbages from then on until early Summer.

**Pests and Diseases:** Snails and slugs are the chief enemies of Cabbage seedlings and, when planting out, ample bait should be distributed around them. Frequent dustings of Derris Dust from then on will ensure the checking of Cabbage Grub and Aphides, as well as most leaf-eating pests. D.D.T. is also widely used for regular sprayings, and ensures clean, grub-free plants.

**Varieties culled from the World's best—see page 231.**

## CHINESE or CELERY CABBAGE.

This is not a true Cabbage, the texture of the leaves somewhat resembling Lettuce, whilst the stalks have a similarity to Celery. It can be eaten raw with salads, having a decided mustard flavour, or it can be cooked in the same way as ordinary Cabbage. It grows rapidly and is also used extensively for greens to feed poultry.

**Requirements:** This is a particularly easily grown vegetable and is subject to very few pests and diseases. Thrives in moderately rich soil with ample water during dry weather.

**When to Sow:** Sowings are possible in both Autumn and early Spring and it should be remembered that these plants are mainly suitable for the cooler times of the year.

**How to Sow: Seeds can either be** sown as suggested for Cabbages, or direct where the plants are to grow. In this case, it will be necessary to thin out to about 10 inches apart. Make rows 12 inches apart.

**Cultivation:** These plants are much more easily grown than the true Cabbage, being subject to a less number of disease and pest troubles. The main thing is ample water during dry weather and generous feeding with either liquid animal manure or artificial. For the latter, dissolve 1 dessertspoonful of Sulphate of Ammonia in a gallon of water, which should be sufficient for about six plants.

**Selected varieties for the Home Gardener—see page 232.**

## CAPE GOOSEBERRY.

Although perhaps more correctly called a fruit, this valuable plant usually finds its place among the vegetables. Fruits can either be eaten raw or used in preserves, for which they are greatly prized in some districts. Also referred to as the Husk Tomato, Chinese Lantern Plant or Ground Cherry.

**Requirements:** The ground should be warm in the early Spring before sowings are commenced. These plants favour an open, sunny position, well drained and sheltered from the worst winds. They like a deeply dug, fairly rich loam well broken up. Add ample quantity of rotted manure or compost.

**When to Sow:** During early Spring in a warm, frost-free position.

**How to Sow:** Use seed boxes or beds and cover seeds with about ⅛ inch of soil. Keep moist and follow instructions as given in Chapter 5.

**Cultivation:** Seedlings are ready for transplanting when about 3 inches high and require a fair amount of space. Usual planting is 3 feet apart each way. Occasional applications of liquid manure will stimulate plants, and fruit can be expected within about five months of planting. In warm, frost-free climates, plants will live three years and should be cut down after each crop, but in colder climates fresh sowings must be made each Spring.

**Varieties—popular because they have proved best—see page 232.**

## CAPSICUM.

A vegetable which grows readily in most districts and, as a guide, it can be said that it will grow anywhere that Tomatoes will grow.

**Requirements:** Fairly rich soil and ample water during dry weather. Preparation of soil, fertilisers, etc., are similar to that required for Tomatoes.

**When to Sow:** These plants are as equally susceptible to frosts as Tomatoes and sowings cannot be commenced until all danger of frost is over. Early Spring sowings would have to be protected in glass frames.

**How to Sow:** Make seed beds of fine soil and sow in drills, spaced 2 inches apart. Cover seed with about ⅛ inch fine soil, or dry, rotted manure; keep moist.

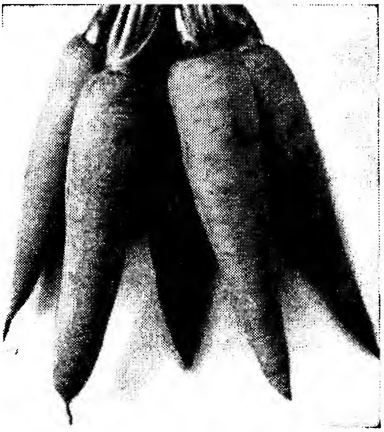
**Cultivation:** When plants are about 4 inches high, transplant to moderately rich soil, spacing them 2 feet apart. Water generously during dry weather and give liquid manure regularly from the time they are about a foot high.

**Varieties that are best for the Home Garden—see page 232.**

## CARROT.

Carrots are perhaps the most health-giving of all vegetables. They are recognised as an aid to eyesight and for the improvement of the hair and skin. Although valuable when properly cooked, they have even greater goodness used raw.

**Requirements:** Carrots thrive in deeply dug loam which has been previously manured some three or four months earlier and usually follow a leaf crop (see Crop Rotation). It is necessary they should be in a sunny, well drained position. Suitable ready-mixed fertilisers with low Nitrogen content are ideal but Superphosphate worked in at the rate of 1 ounce per square yard will suffice for most soils. This should be worked in at a fairly low level and not contact the seeds.



*Topweight Carrot is splendid for thinning out and using when the roots are still small or allowing to grow to medium or full size, according to requirements.*

**When to Sow:** As plants are susceptible to frost, sowings are not usually commenced until the ground has warmed in the early Spring, unless a sunny, frost-free position is available. They continue through the Summer until the early Autumn and the last sowing planned to allow three months of frost-free weather remaining. In warm climates where Winters are mild, or even practically frost-free, sowings can be continued even later.

**How to Sow:** Seedlings are seldom transplanted but seeds are sown direct into rows spaced 9 inches apart. Draw a shallow furrow about 1 inch deep and sow the seed along this fairly sparsely. Fill in with about ½ inch leaf mould or sifted soil and consolidate thoroughly with the back of the rake. This will leave a narrow depression along each row that will help to mark the rows and hold moisture. Sometimes Radish seed is also sown with Carrot. These germinate within a few days, helping to break the crust, thus assisting the young Carrot seedlings to come through. It also permits cultivation of the Carrot bed to eliminate those early weeds that appear before the Carrots. Protect from slugs and snails by generous distribution of suitable bait.

**Cultivation:** Keep down weed growth right from the start by shallow cultivation. Do not "hill" Carrots. To ensure that plants keep moving give a dressing of Sulphate of Ammonia, 1 tablespoon to each 5 feet of row, keeping it fairly close to the young Carrots and distributing on both sides of the row.

As soon as the seeds have germinated, crowded seedlings should be thinned out to 1 or 2 inches apart. Allow them to grow for a few weeks and thin out again to 3 or 4 inches apart. Those pulled out can usually be used for cooking and the others allowed to mature as required. Carrots should not be allowed to get old, and successive sowings, say, every three weeks, will ensure regular pullings of fresh Carrots.

**Tried and Proved Varieties—see page 232.**

## CAULIFLOWER.

It is the aim of nearly every home gardener to grow good Cauliflowers and when this is achieved they prove a most delectable vegetable. Modern varieties, such as the Phenomenal types, make this job much easier than when the Continental Broccoli types were practically the only ones available. The "Phenomenals" are giving remarkable results in all sorts of climates.

**Requirements:** Soil preparation is important. Cauliflower require deeply dug loam, well drained and generously manured. A 4-inch layer of animal manure or 2 inches of poultry manure dug in is not too much. If compost is used as an alternative, a generous amount of artificial fertiliser, say, 2 tablespoonsful to the square yard, can be used. They need copious watering during dry weather and it is advisable to make a thorough soaking once a week rather than daily sprinklings, which induce only surface roots. Soil which has not been limed within 12 months of the time of planting can be given an application of 8 ounces to 1 lb. per square yard. This must be applied at least three weeks before the manures and fertilisers. Allow plenty of time for the land to fallow before planting, to enable it to have the full effect of sun, wind and rain. A good plan is to dig and lime the bed about the time the seeds are sown, giving it another digging about a week before planting and, at the same time, incorporating the manures. The day before planting give it a thorough soaking.

**When to Sow:** In districts similar to Sydney, sowings are commenced in late December and continued until the end of January, enabling seedlings to be planted out between February and March. All vegetables (early and late) are sown at this time, enabling a succession of "flowers" from May to August. In climates warmer than Sydney, sowings are commenced a little later—from about the end of January to February.

In cooler districts sowings are started about the end of November and might continue to the end of December. Phenomenal Maincrop and Derwent Giant are usually sown at this time, but Metropole, which is later maturing, from about the end of January. With this variety, seedlings are planted out about March for hearting in the late Spring.

**How to Sow:** Make seed beds along the lines suggested in Chapter 5, or sow in seed boxes. Make shallow furrows about ½ inch deep and 2 inches apart, sowing the seed along the bottom of each. Cover with ¼ inch sifted loam and leaf mould and keep moist. Germination can be expected within ten days. The strongest seedlings are those which are grown well apart and in most cases thinning out is necessary. Pricked-out seedlings are even better (see page 31).

**Cultivation:** Transplant seedlings when they are 4-6 inches high, spac[illegible] the small varieties 20 inches apart [illegible]ch way and the large, 24-30 inches. Choose a dull day if possible, but if not, leave transplanting until the evening. See notes on transplanting. Give each seedling a pint or so of water as soon as possible and during very hot weather afford some shade with twigs or a piece of timber 6 inches wide driven into the ground at an angle so that the plant is sheltered during the hottest part of the day. Avoid damage to fibrous roots by lifting out the seedlings carefully with a complete block of soil and so prevent any check in the important early stages.

With these precautions, seedlings should soon be growing rapidly and when half grown can be given a further dressing of fertiliser, 1 teaspoonful to a plant. Sulphate of Ammonia is a good stimulant. As they commence to form "flowers,"

*Give plants room to develop. These vigorously-growing carrots are about 3 inches apart.*

another dressing can be given, and fortnightly applications of liquid manure.

Those varieties that do not protect their flowers adequately can be assisted by breaking a few centre leaves over the surface so that they cover the top.

Pests and diseases are dealt with more fully in Chapter 15. Spraying with White Spraying Oil, so that the plant is covered, gives them protection from many pests, including Cabbage Fly and Aphides. A fortnightly application of suitable D.D.T. Emulsion will ensure that they are kept clean. For those gardeners who prefer completely non-poisonous insecticides, Derris Dust or Katakilla (a Derris spray) is recommended.

**Varieties are important for successful gardening—see page 233.**

## CELERY.

If there are any "secrets" in growing Celery they are no more than—ample water and generous quantities of manure. It is a crop that requires rather more attention than most vegetables but the reward of fresh, crisp stalks makes it well worthwhile.

**Requirements:** The planting of Celery should be planned well ahead and the soil given a thorough digging to the full depth of the spade or fork. The position to be chosen should be sunny and well drained for, although these plants can absorb huge quantities of water, they resent it not having free flow from the soil. They are very partial to lime, and up to 1 lb. per square yard is recommended if the soil has not been previously limed within 12 months before planting. If time allows, give the soil an opportunity to fallow and then re-dig before planting, at which time the manures can be incorporated with it.

A layer of animal manure up to 4 inches deep is not too much, except where poultry manure is used and 2-3 inches would then be sufficient. If natural manures are not available and compost is used, suitable ready-mixed artificial fertiliser will be necessary, using up to 2 ounces per square yard. Even with the use of animal manures, half the quantity of artificial fertiliser can still be used.

Quite frequently Celery is grown in trenches 18 inches wide and dug out to the depth of the subsoil. The trench is then filled with manure, soil, and any compost that might be available.

Still another method is the intensive culture by which plants are grown in the beds, say, 4 feet wide and planted very close together so that because of their denseness when they are fully grown, each blanches the other. Boards are used only around edges of the bed to shade the light from the outside plants.

Other methods of blanching are the use of cardboard cylinders around the plants, or by planting the young seedlings well down in the trench and later drawing the soil over them.

**When to Sow:** Sowings are commenced in October and continued until December. For cool districts, August sowings are possible.

**How to Sow:** Celery seedlings are not the easiest of plants to raise because germination of the seed is often erratic and slow. Being a fairly fine seed it needs no more than about ⅛ inch covering of soil and should be kept well watered during the entire germination period which might be from 21 to 50 days.

**Cultivation:** Seedlings that may be too crowded should be thinned out to 2 inches apart, thus giving them ample space to develop. They are ready for transplanting when about 5 inches high and as they resent any root disturbance they must be lifted with as much soil as possible and planted either on a favourable cool day or during the late evening. Water each plant thoroughly. Seedlings are spaced 12 inches apart, with 20 inches between the rows if hill blanching is practised. Under the intensive system they would be planted 6 inches apart each way.

*A simple method of blanching Celery by wrapping newspaper around the stalks when they are 10–15 inches high and allowing it to remain until they are ready.*

It is essential to keep them weed free by frequent shallow surface cultivation and this should be followed by a good soaking. Water regularly in dry weather and once plants are thoroughly established, give liquid manure fortnightly. When about half grown, a side dressing of Sulphate of Ammonia will ensure that they keep growing: use 1 tablespoonful to every 5 feet of row.

**VARIETIES—make a suitable choice from those on page 233.**

## CELERIAC.

### (TURNIP ROOTED CELERY).

A root vegetable with a Celery-like flavour; is easily grown and used as a tasty addition to soups and stews.

These plants require a fairly rich and well drained soil.

Seed is sown during Spring or early Summer in seed beds made of fine soil.

When seedlings are 1-1½ inches high they can be transplanted and watered thoroughly. Seed can also be sown direct where the plants are to be grown and the seedlings afterwards thinned out. Roots are ready for use when about 2 inches in diameter.

## CHICORY.

A not very widely grown but nevertheless useful vegetable. These Parsnip-like roots are dried and ground for mixing with coffee and the young tops are used in salads, making a very tasty dish.

**Requirements:** The cultivation of this plant is the same as for Carrots except that they favour a rather richer loam. It must be deeply dug and if they follow a leaf crop such as Cabbage, so much the better.

**When to Sow:** From Spring to early Summer.

**How to Sow:** Dispense with seed boxes or beds and make sowings direct where plants are to grow. Draw shallow furrows about ½ inch deep and sow the seed along the bottom of these. Cover with about ¼ inch of sifted loam or leaf mould and make this firm over the seeds.

**Cultivation:** When seedlings germinate and become thoroughly established, thin them out to about 4 inches apart. The young tops can be forced and made more tender by maintaining regular watering and applications of liquid manure.

## CHOKOS.

Increasing quantities of this vegetable are being grown in home gardens each year. The plants require comparatively little land space but need an extensive area such as the top of a shed or a fence on which to climb. The fruits which are produced in enormous quantities during the Summer, are not unlike a blunt-ended Cucumber and cook similar to the Marrow. They are not grown from seed but from the "seed" tubers.

**Requirements:** Chokos favour rich, well-drained loam. Whilst they are very hardy, they need ample water during dry weather, especially in the early stages. Although single plants are quite successful and give ample fruits for the average family, it is always a good plan to plant two.

**When to Plant:** Tubers are available during the Spring which is the right time for planting. If the young shoots appear above the ground before the frosts have finished, they must be protected until all danger of frost is over.

**How to Plant:** Dig the soil within a circle 3 feet in diameter and incorporate a 2-3-inch layer of rotted manure. A quantity of wood ash, say, half a bucketful, will also assist these plants. If the soil is very heavy and sand is available the same quantity of this can be also mixed in. Plant the tuber 3 inches below the surface with the shoot end pointing upwards.

**Cultivation:** Very little attention is necessary except to keep the soil weed-free by light surface cultivation, and to ensure that it does not dry out during hot weather. The young shoots are easily broken and it is advisable to provide a wire netting guard at least until they are well established. Plants will die down during the Winter and tubers can be left in the ground to grow again in the following Spring.

## CRESS (and MUSTARD).

A great deal more of these salad greens could well be grown by home gardeners, for they provide a tasty addition to Summer salads and the young leaves are ready for picking in about 4 weeks.

**Requirements:** It is usual to grow both Mustard and Cress in shallow boxes prepared much in the same way as seed boxes. They are filled with a moderately rich friable loam and kept in a shady place, such as on a verandah or under the house.

**When to Sow:** Both Mustard and Cress can be sown at all times of the year. Usually two boxes are prepared, one for each, and as Cress takes a little longer it is sown about a week before the Mustard.

**How to Sow:** Make shallow drills in the surface soil of the box, about 1½ inches apart, and after sowing the seed along this, cover it with ¼ inch of sifted loam or leaf mould.

**Cultivation:** No attention is necessary apart from regular watering, so as to ensure that the soil does not dry out. When the young plants are an inch or so high and show tiny primary leaves, they are cut close to the surface of the soil and after washing added to the salads or used in sandwiches.

**The Home Gardener's favourite varieties—see page 233.**

## CUCUMBER.

Those gardeners who regularly grow Cucumber each year know the value of being able to pick the fresh crisp fruits from their own garden instead of having to rely on doubtful commercial supplies. No Summer salad is complete without the addition of appetising Cucumber rings.

For general Cultivation, see VINE CROPS, page 76.

**Varieties for the Home Garden—see page 233.**

## CYPHOMANDRA.

The only qualifications that this plant has for being included among vegetables is that it is popularly called "Tree Tomato." Fruits are egg-shaped, about the size of a Passionfruit, and with somewhat similar flavour.

Plants are easily raised from seed which should be sown in the Spring. Young seedlings can be potted or tinned when about an inch or so high, or transferred to prepared beds until they reach a height of about 8 inches. They can then be planted in their permanent positions. Being Shrubs, they are, of course, perennials and under suitable conditions will last many years and grow to a height of up to 8 feet. If several plants are grown, these should be spaced at least six feet apart.

They require a rich soil and a warm, sheltered situation. Although they are really suited to sub-tropical regions, they will thrive under suitable conditions in districts similar to Sydney.

**A suitable variety, see page 233.**

## EGG PLANT.

Although widely grown in America this plant is not seen to the same extent in this country. The large semi-globe fruits are cut into slices, covered with salt, and then fried in batter. They are also very tasty boiled or baked and served with bread-crumbs.

**Requirements:** As this plant has a fairly long growing season, it requires approximately 7 months of frost-free conditions between Spring and Autumn. The soil preparation is similar to that required for Tomatoes, for which see page 73; these plants thrive in a sunny, well-drained position.

**When to Sow:** Seedlings are raised as early in the Spring as possible but, where frosts are still prevalent, it is necessary to give them protection, such as a cool frame, see page 34. Provided the season is long enough, further sowings can be made during Spring.

**How to Sow:** As these plants do not transplant easily it is sometimes the practice to use tins or strawberry punnets in which to sow the seeds. Two seeds are sown in each and if both germinate, one plant is removed. Where seeds are sown direct into the open ground, they are set in pairs and, again, if both germinate, one plant is pulled out. These pairs are spaced 2 feet apart in rows with the same distance between.

**Cultivation:** This is the same as for Tomato. If plants tend to carry more than 8 to 10 fruits, any over this number should be taken off. Fruits are ready for use when they have attained their rich, deep purple shade which should occur within about 6 months of germination.

**Varieties—a selection for your choice —see page 233.**

## ENDIVE.

This is a salad vegetable used as a substitute for, or as an alternative to Lettuce and is probably more suited for warmer climates.

**Requirements:** Endive thrives in conditions similar to lettuce, requiring fairly rich loam in a well-drained sunny position. They need a longer time to mature than Lettuce and may take up to 9 weeks before they are ready for the table.

**When to Sow:** Sowings are possible in Spring, Summer and Autumn.

**How to Sow:** In seed boxes or beds as described in Chapter 5. The seed is very fine and should not be covered with more than ¼ inch of soil; the best way is to mark out shallow drills 1½ inches apart and ½ inch deep—sow the seed along this and then cover with good loam or leaf mould. Consolidate this thoroughly by firmly pressing with a piece of flat timber and keep moist.

**Cultivation:** When seedlings are about 3 inches high, transplant to their permanent positions 10 inches apart in rows, with 12 inches between them. The general care is the same as for Lettuce, but Endive must be blanched. This is done by covering with a heavy layer of straw, but other methods, such as flower pots, wooden discs, slates and boards are also used. Still another method is to tie string around the top of the plant so that the centre is tightly enclosed. Blanching may take 10-14 days and as plants soon run to seed afterwards, only a few should be done each time.

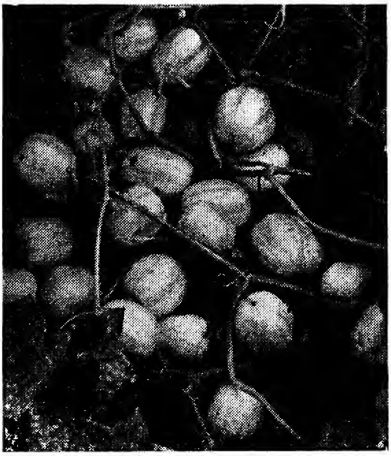
**A suitable variety—see page 233.**

## HERBS.

Apart from the value of Herbs and their use in the kitchen, most gardens benefit from the presence of these plants. It is known that they repel some insects and gardens with Herbs are often freer of troubles than those without.

Unfortunately, the demand for most Herbs is so small that they are not grown in commercially saleable quantities for seed. Those of which seed is usually available are Thyme, Sage and Marjoram. Mint is not grown from seed but from root division.

**Requirements:** With the exception of Mint, which likes a fairly damp situation, most Herbs favour a sunny, well drained position. They are not



*Yates' Crystal Apple Cucumber not only crops prolifically over a long period, but is also unsurpassed for eating qualities.*

over particular as to soil and thrive in most average garden loams. Whilst it is a good idea to give them a place of their own, many gardeners find it convenient to grow them around the edges of garden beds. They are also intercropped with other vegetables.

**When to Sow:** In temperate climates most Herb seeds are sown in Spring and sowings continued until December. In cool climates, Autumn sowings are general.

**How to Sow:** Seeds are usually sown in seed boxes and the young seedlings afterwards transplanted. Cover the seeds with soil equal to about twice their own thickness, and keep moist.

**Cultivation:** Plants should be well established before they are moved from the seed boxes to their permanent positions and it does not matter if they are up to 3 inches high. Usually they are placed about 9 inches apart in rows, with 12 inches betwcn them. Apart from regular surface cultivation to keep the weeds down, and watering, they need very little other attention.

Those Herbs that are to be used green require a little more care than those that are to be dried. For drying, plants are allowed to bloom and then hung upside down on string in some shady place. They should be dried as quickly as possible, after which they are crushed and stored in well sealed bottles or jars.

**Varieties which are hardy in Australian gardens—see page 233.**

## HORSERADISH.

These are long, Parsnip-like roots which, when matured, are lifted and stored for use. They are then shredded and used as a condiment.

**Requirements:** Like Parsnips, they require well dug loam broken up to the full depth of the spade or fork. Any manure that is used must be well rotted and kept well below the surface; these plants favour fairly moist conditions and are unlikely to grow in abnormally dry positions. They are propagated from roots usually available from June to September and not from seeds.

**When to Plant:** June to September.

**How to Plant:** Space the roots about 6 inches apart, ensuring that the soil is thoroughly broken and that no large lumps remain. After each piece is planted, press the soil firmly around it and water well. Horseradish is a fairly persistent plant and should be confined to its own corner of the yard. Old roots are pulled up and destroyed and only the younger ones used for replanting.

**Cultivation:** Providing the soil is moderately rich in the first place, these plants will require very little attention. They are, however, very easily smothered by weeds and regular shallow tilling of the surface will ensure that this does not occur. To keep roots growing steadily in dry weather, water sufficiently to keep the ground moist without being wet.

## KOHL RABI.

### (TURNIP ROOTED CABBAGE).

Contrary to many beliefs, Kohl Rabi is not a strong tasting vegetable, especially if it is grown fairly rapidly in good soil. It is identified by its round Turnip-like root growing above the ground which, when cooked, combines the flavour of both Cabbage and Turnip.

**Requirements:** These are practically the same as for Cabbage except that the soil need not be quite so rich and they need rather less attention. They are a hardy vegetable and given ordinary cultivation will succeed in most soils, providing a welcome alternative in the daily meals. If soil has been heavily manured for a preceding crop, this may be sufficient without further addition but if not, spread a 2-inch layer of well-rotted manure over the surface and dig this in. Ready-mixed fertiliser, No. 12, can also be distributed, 1 ounce to the square yard.

**When to Sow:** Sowings are usually commenced in the late Summer months (January in Sydney) and continued until the Autumn (early April). In cool climates, early Spring sowings are also possible.

**How to Sow:** Seeds may first be sown in seed boxes and afterwards transplanted, but it is usual to sow the seeds in rows 12-15 inches apart and thin out to 6 or 8 inches between the plants.

**Cultivation:** Ample water is essential if any tendency to toughness is to be avoided in these bulbs. Consequently, in dry weather, give a good soaking once a week; they can also be stimulated by fortnightly applications of liquid manure. Plants should be kept weed free by shallow surface cultivation and it is not necessary or desirable to "hill" plants. Bulbs should not be allowed to develop beyond 2½-3½ inches in diameter, for it is at this stage that they are ideal for cooking. Later on they are inclined to become tough and stringy. It is better to gather some bulbs prematurely rather than have to waste large over-age bulbs.

**Varieties—tried and tested under Australian conditions—see page 234.**

## LEEK.

For a Winter vegetable, Leek is often preferable to the Onion which, however, usually gets priority in most home gardens. It is a hardy plant, standing severe frosts and, of course, is of much milder flavour than the Onion.

**Requirements:** Leeks are seen at their best in fairly rich loam but give excellent results in any soil that is reasonably good. They seem to have a preference for clay loams and seldom thrive in those of an extremely sandy nature. Soil should be fairly deeply dug and given generous quantities of rotted manure.

**When to Sow:** During Spring, early Summer and Autumn.

**How to Sow:** Sow the seeds in seed beds, not too thickly, allowing them to develop to about 4 inches high. The seed is fairly easily raised but thorough adhesion to the soil is necessary by compacting it with a piece of flat timber after the seeds are sown.

**Cultivation:** Make a trench about 4 inches deep and plant the Leek along this so that only the green top of the plant appears above the bottom of the trench. Spacing between the seedlings is usually 6 inches and if more than one row is desired, allow 12-15 inches between each. As the plants grow the trenches are filled-in which assists in blanching the lower portion of the plant. Later on, the soil from the sides is hilled up around them so that the major portion beneath the leaves is blanched. Ample water is necessary during dry weather, for under no circumstances will these plants thrive in drought conditions.

**The best Home Garden variety—see page 234.**

## LETTUCE.

Newcomers to gardening who have been told that Lettuce is one of the

*For ability to stand summer temperatures, Great Lakes Lettuce has superseded most other large varieties.*

most difficult crops to grow should first try just a few plants and find out for themselves that with a little care this is far from true. The essentials are—ample water and manure.

**Requirements:** Choose first those varieties suitable for the season in which they are to be grown. Some are "all rounders," but nowadays it is possible to select Lettuce that have been especially bred for either cool or warm conditions. Select a well-drained, sunny position and an area of a size that it can be well looked after. It should be dug to the full depth of the spade or fork, providing this does not bring up the subsoil, and if possible prepared some six weeks before planting. At this stage it can be given a dusting of lime, up to 1 lb. per square yard. Before sowing or transplanting, give the soil another digging and allow it a week or so to settle.

With this digging incorporate a 4-inch layer of rotted manure or compost and fertilise with suitable ready-mixed artificial manure at the rate of 1 ounce to the square yard, or 2 ounces to the square yard if only compost is used.

**When to Sow:** In most districts Lettuce can be sown any time of the year.

**How to Sow:** Most gardeners find that to sow the seed direct where the plants are to grow, saves time and trouble. Drills spaced 12 inches apart are made 1 inch deep and the seed is sown along the bottom of these with a covering of about ½ inch of soil. Plants that are thinned out can be transplanted elsewhere and are usually ready a little while after those that have been left to grow in the bed. Seedlings are also raised in the seed boxes as described in Chapter 5.

**Cultivation:** Seedlings that are transplanted should be placed as described above and thoroughly watered as soon as possible. Once established they should be given a thorough soaking in dry weather at least once a week. Sulphate of Ammonia is an ideal stimulant and can be given in liquid form by dissolving one tablespoonful in a gallon of water. Give about 1 pint of this solution to each plant each week. Sometimes it is given in dry form, 1 teaspoonful to a plant and afterwards watered in. Liquid manure made as described on page 26 is also a valuable stimulant. It is essential with Lettuce that they receive no check in their growth, otherwise they tend to be tough and bitter, and may prematurely run to seed. This frequently occurs in hot weather if seedlings are transplanted instead of being undisturbed right from the time they germinate.

**Varieties—tried and tested under Australian conditions—see page 234.**

## MARJORAM.

**(See HERBS, page 58.)**

## MARROW.

Most home gardeners find that the Bush types of Marrows are the most suited for their purposes, requiring less space and being much more tidy in their habit. However, where there is spare ground available, the Running varieties will be found more prolific. Bush types can be spaced 3 feet apart and the Running types 4-5 feet.

(For Cultivation Notes, see "VINE CROPS"—page 76.)

**The Home Gardener's favourite varieties—see page 234.**

## MELONS.

### Rock and Water.

When temperatures are high during the Summer months, there are few things more refreshing than slices of cool Water Melon; and for dessert, of course, Rock Melon served with ice cream.

Although a little less easy to grow than Cucumber or Pumpkin, they need similar conditions and treatment.

For Cultivation, see "VINE CROPS"—page 76.)

**Requirements:** These are the same as for other vine crops, for which see page 76, but it is worth noting that Water Melons originated in a dry Summer area with good rainfall for the plants in their young stages and which gradually diminished as they matured.

Rock Melons are perhaps more susceptible to mildew than other vine crops and there should always be special care in watering. For preference, this should be done at the roots with irrigation rather than from overhead. Flowers of Sulphur regularly dusted on the plants in humid weather will do much to control this trouble.

**What varieties should you grow?—see page 234.**

**Preserving Melons** are also members of the same family and page 76 should be referred to for the cultivation of these crops.

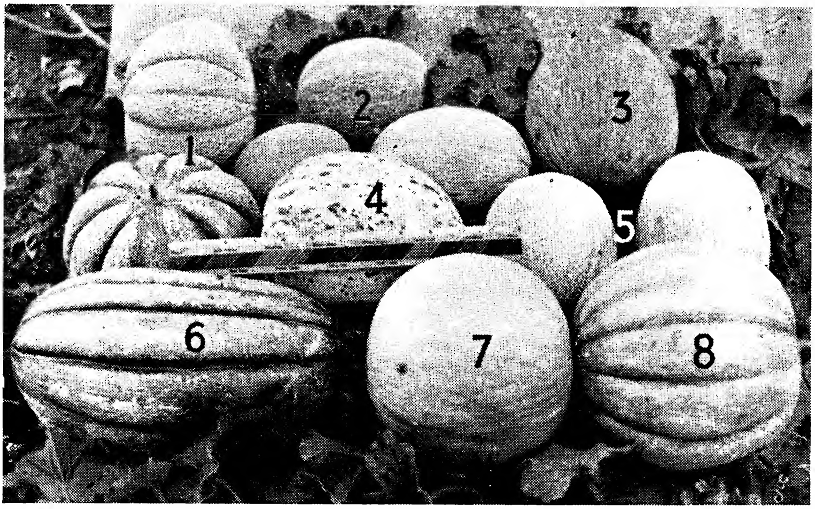
## MUSHROOMS.

The growing of Mushrooms can be both an absorbing and profitable hobby. Their success depends somewhat on being able to provide the right conditions and the availability of suitable manures. However, they can also be grown outdoors under "natural" conditions.

Mushroom Spawn bricks are usually available from March to July and the use of these has been found a sure method for the home gardener to get results.

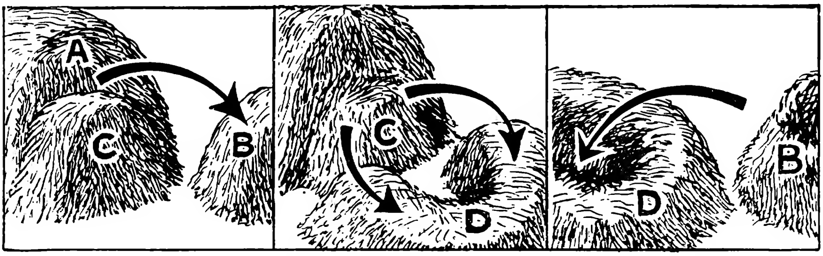
**Requirements:** Protection for Mushroom beds such as a shed or building is not, as is sometimes thought, to enable them to have darkness, but rather as a shield against heavy rains and high temperatures. This crop is not likely to succeed in a temperature of over 75 degrees Fahrenheit. Extreme cold will lower production of Mushrooms but temperatures can be reduced to 50 degrees without any appreciable loss. This, then, is the reason why Mushrooms are cultivated during the cooler months of the year. The preparation of the compost is important and for preference this should be stored and mixed under shelter. Either cow or horse manure can be used but stable manure containing a good quantity of straw is recognised as the best. If no straw, or only very little, is in the manure, it must be introduced. About 1 cwt. straw to 4 cwt. of manure is the usual combination. In volume, this would make the heap of manure three times greater than the straw heap. Small heaps do not ferment sufficiently and a heap not less than one cubic yard is recommended.

The next important operation is to turn the heap, which is done four to five times over a period of three weeks, with 3-4 days between each turning. The first turning will be necessary 3-5 days after the heap is



*ROCK MELONS.*

1. *Early Hackensack (2 in group)*; 2. *Hales' Best (3 in group)*; 3. *Golden Beauty (not now available)*; 4. *Californian Cream*; 5. *Rocky Ford (2 in group)*; 6. *Improved Cantaloupe*; 7. *Honey Dew*; 8. *Yates' Surprise.*



*The turning of the heap is important.*

made. The correct method is to work around the heap, removing the whole outer casing to a depth of 9 inches. This forms the inside of the new heap, and, of course, the inside of the old heap becomes the outer casing of the new (see illustration). With the first two turnings the heap should be thoroughly wet and, for the third, just damp. At the fourth and fifth turns, it is not necessary to water unless the manure shows signs of burning, which is noticeable by whitish, ash-like flakes. Finally, let the heap stand for three or four days before using.

What has been described is quite a simple operation, but very necessary if weed and insect pests are to be eliminated.

To ensure that the compost is ready test it by squeezing a handful which should hold together by its dampness but show no signs of surplus moisture.

**When to Plant:** In most districts plantings are commenced in March and continued until July, but in cool climates this season may be extended from February to August, inclusive. In underground tunnels or similar places where temperatures do not exceed 75 degrees in Summer, still earlier and later plantings are possible.

**How to Plant:** Mushroom beds are usually made 3-4 feet wide, according to whether they can be worked from one or both sides. The compost is spread over the area and trampled well down to a depth of 8-12 inches. Temperature tests are made for 3 or 4 days by thrusting pointed sticks into the bed to make holes for the thermometer. If the temperature remains constantly around 75 degrees, not higher, the Spawn can be planted. Break the bricks into pieces, about the size of a walnut, and space them 9 inches apart. Push them 1 to 2 inches under the surface. One brick is sufficient to plant 8-10 square feet.

**Cultivation:** Leave the bed undisturbed for about a week after planting but to conserve moisture it can be covered with bags or paper. These are then removed and a layer of clean loam soil distributed to a depth of 1-1½ inches. This should be clean loam taken from the garden 8-9 inches under the top soil. Give a light sprinkling of water daily and do not water heavily unless the soil tends to dry out because the aim is that no water should penetrate to the compost underneath.

Mushrooms can be expected in from 6-8 weeks of planting and usually appear in relays with intervals of a few days between each.

**Other Methods:**

Mushroom Spawn is also planted in paddocks and lawns and, although not so productive as the above method, gives quite good results. The bricks are broken up as described previously and the turf is lifted with a mattock or spade. A small piece is then pushed underneath and the turf replaced.

## MUSTARD GREENS.

(See CRESS, page 233.)

## OKRA (or GUMBO).

The long seed pods are used for flavouring soups and stews.

**Requirements:** These plants favour a rich soil and ample water during dry weather.

**When to Sow:** During the Spring and early Summer months.

**How to Sow:** Make a seed bed of fine soil, marking out deep drills about 2 inches apart. Seed should be covered with about an inch of good loam and a sprinkling of dry, rotted manure. Seeds can also be sown direct where the plants are to mature; soil should be well firmed down and kept moist.

**Cultivation:** Transplant or thin out seedlings when about 4 inches high, spacing them 18 inches apart with 24 inches between the rows. When plants are well established they can be given a side dressing of Sulphate of Ammonia, about a teaspoonful of this around each plant, and watered in well. This can be repeated when the plants are showing flowers.

**Start with a suitable Home Garden variety—see page 235.**

## ONIONS.

Although the Onion is regarded as almost indispensable in most homes, quite large quantities are purchased rather than being grown in the garden. It may not be generally realised that it is possible to ensure supplies over a long period by growing early, mid-season and late Onions respectively. Varieties such as Brown Spanish can be stored for many weeks and used as required. (See "When to Sow" on this page.)

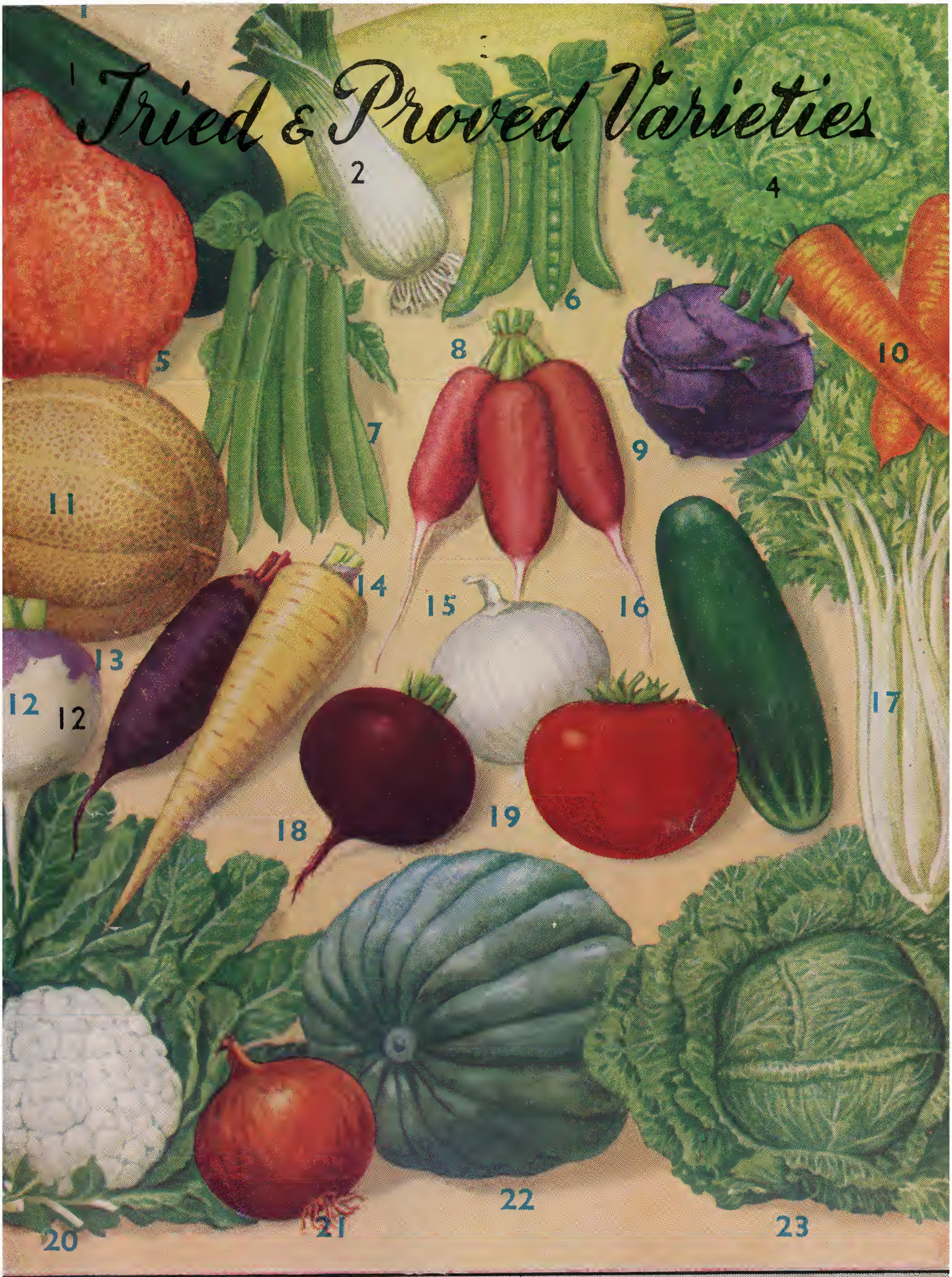
*Early Barletta Onion lives up to its name and is ready for pulling within about 12-14 weeks of planting out seedlings.*

**Requirements:** Onions do not favour an over-rich soil, and ground that has been manured for a preceding crop will be found ideal. Over-rich soils tend to produce a heavy top growth, to the detriment of the bulbs and long keeping varieties are not likely to store well. Most garden loams are suitable for growing Onions, providing water does not lie under the surface more than about 24 hours after heavy rains. On most soils some fertilising is necessary and a mixture of three parts Bone Dust and two parts Superphosphate distributed at the rate of 2 ounces to the square yard has been found suitable. Wood ashes dug in at the same time are also beneficial but, if not available, a half part of Potash can be added to the above mixture, making it 3, 2, ½. These fertilisers must be applied well within range of the plants, which have a very limited root system. The best method is to distribute it in a band about 8 inches wide and 2 inches under the surface. This is done by removing the top 2 inches, applying the fertiliser and then replacing the soil.

Given these conditions, the Onion is a hardy plant and most tenacious, and when it is considered the difficult conditions often experienced by these crops when planted commercially in large areas, it can be realised that in the home garden, with wind shelter and a little more attention, it should not be a difficult crop to grow.

**When to Sow:** Onions require a natural sequence of seasonal conditions for successful growth. The seed is sown some weeks prior to the approach of the cool or cold weather, during which time the young plants make their root growth, which is followed by rapid bulb growth as the warm weather approaches. In warm districts, the period of cool or cold conditions is usually not sufficiently long for the late varieties of Onions and consequently sowings are confined to the early varieties. These are sown first in February and continued until May. But in temperate and cold climates late maturing and long keeping Onions are also sown at about this time. In mountain or other cold regions, August sowings are also possible. With the late varieties, it may seem logical to commence sowings earlier than February but this would leave too great a period before the arrival of the cool weather and plants would be unlikely to succeed. The Spring or Salad Onion, which is allowed to grow only to the stage where the stem thickens at the base, may be sown right through the Autumn and Spring. Some gardeners are quite successful with all-the-year-round sowings.

# Tried & Proved Varieties



1. Yates' Market Wonder Water Melon.
2. Musselburgh Leek.
3. Long White-Fruited Bush Vegetable Marrow.
4. Yates' Imperial 847 (Black-seeded) Lettuce.
5. Golden Hubbard Squash.
6. Greenfeast Peas.
7. Hawkesbury Wonder Beans.
8. French Breakfast Radish.
9. Purple Kohl Rabi.
10. Chantenay Carrot.
11. Yates' Surprise Rock Melon.
12. Purple Top White Globe Turnip.
13. Yates' Obelisk Beet.
14. Hollow Crown Parsnip.
15. White Imperial Spanish Onion.
16. Early Fortune Cucumber.
17. Solid White Celery.
18. Yates' Derwent Globe Beet.
19. Break O' Day Tomato.
20. Yates' Phenomenal Early Cauliflower.
21. Yates' Derwent Long Keeping Brown Spanish Onion.
22. Yates' Queensland Blue Pumpkin.
23. Yates' Select Succession Cabbage.

# Home Grown Vegetables are More Succulent

**How to Sow:** Although numerous Onions are grown from transplanted seedlings, this method does not always give such good results as those seeds sown in the rows where the plants are to remain and mature. The method is to mark out shallow furrows up to 1 in. deep and sow the seed along the bottom of these. The distance between the furrows is usually 9-12 inches. Onion seed does not germinate readily if conditions are unfavourable. After sowing, cover with about ½ inch good loamy soil, pressing this down firmly so as to compact all the large air spaces around the seed. Water thoroughly and keep moist by daily sprinklings if necessary until the seed germinates. Some gardeners will find it more convenient to make a seed bed in which the seeds are sown in drills spaced 4 inches apart. Seedlings must be kept weed free and are ready for transplanting when about 4 inches high.

**Cultivation:** Thin out seedlings (or transplant them) to 4 or 5 inches apart, making sure that only the roots are covered with soil, leaving all the green foliage above the ground. Transplanted seedlings can be nipped back 2 inches, enabling them to strike more easily.

When the plants are well established, say, after two or three weeks, they can be given a weak solution of Sulphate of Ammonia, one heaped tablespoon to a gallon. This should be sufficient for 12-15 feet of running row. Weak liquid manure can also be used but care is necessary to avoid over-stimulating this crop. A further application of these solutions may be necessary when the plants first start to bulb.

Onions are ready when the tops tend to wilt. Those intended for storing keep better if they are pulled while the tops still retain some of their sap and allowed to lie on the surface for a few days, but so arranged that the leaves and stalks cover the bulbs until the tops are dried out. Even recognised non-keeping varieties should have this treatment if it is not intended to use them all immediately.

**Why Onions may fail to bulb:**

Usually this is due to sowing at the wrong season but can also be caused by over-forcing through using fresh animal manures or artificials with too much Nitrogen (Sulphate of Ammonia, etc.). Some commercial growers hasten ripening by breaking down the tops, but it is not an essential practice and if done too soon can be harmful.

## POTATO ONIONS

These are mild, good-flavoured Onions and can only be planted by bulbs which are generally available February/March. They are not good keepers but are quite suitable where it is not possible to grow the ordinary Onions.

## TREE ONIONS

These are small bulbs which grow on top of the stems. The little bulbs are planted in the Autumn and make fair-sized Onions the following Spring. They are useful for warm climates where ordinary Onions will not bulb.

**Selected varieties for the Home Gardener—see page 236.**

## PARSLEY.

A patch of Parsley requires little attention and plants are practically disease and pest free. It will provide a regular supply of this very beneficial herb for the home. Many medical authorities consider it has a high medicinal value and one has said that "for anyone run down, a Parsley sandwich will do the work of an iron tonic more cheaply and agreeably."

**Requirements:** These plants will thrive in any good garden loam that has been well dug and preferably prepared a few weeks before planting. Liming the soil is not recommended for they show a preference to a slightly acid condition. If available, dig in a fairly liberal quantity of rotted manure, allowing 2-3-inch layer over the bed. Whilst these plants thrive in full sunshine, they are not averse to a semi-shaded position that keeps fairly moist.

**When to Sow:** Sowings are possible both in the Autumn and again in the Spring.

**How to Sow:** As these plants do not transplant easily the seed is sown where the plants are to grow and remain. Shallow furrows are marked out 12 inches apart and 1 inch deep. Seed is dropped along the bottom of these and covered with ¼ inch fine loam or leaf mould. It is frequently the practice to mix a little Radish seed with the Parsley, which may take from 5 to 6 weeks to germinate. The Radish comes through the soil in a few days and thus marks the rows plainly, so that the ground can be weeded without disturbing the Parsley seed.

**Cultivation:** When germination is complete and plants are well established, thin out to 12 inches apart. If plants appear backward, they can be stimulated with regular applications of liquid manure or Sulphate of Ammonia, 1 tablespoon to a gallon of water. Small pickings should be possible within three months of sowing and then plants will yield abundantly for up to two years, when they should be replaced with new seedlings. At no time should they be picked "bare," allowed to flower or dry out in hot weather.

**Make sure of a good variety—see page 236.**

## PARSNIP.

The first essential in growing this crop is fresh seed. Parsnip seed loses its germination very rapidly but we ensure that seed will germinate successfully by first testing it and then short-dating the packets, which are removed from stock, when their time is up, and replaced with new ones.

**Requirements:** As with Carrot, Parsnip require a deeply dug loam and a small area of properly prepared soil will yield a much greater poundage of first-class roots than would numerous rows in poorly prepared beds. This does not mean that there is any great difficulty in growing Parsnip, but rather that it is not sufficient to merely dig a few inches of the surface soil and sow the seed. Those gardeners who really want to make sure are well advised to throw the soil out to the depth of the subsoil, which should be broken up and the top soil replaced. If the top soil is very shallow increase the depth by raising the beds, making paths 18 inches wide and 6 inches deep on either side, and throwing the soil out of these onto the bed. This will also assist drainage in damp positions.

Superphosphate, 2 ounces to the square yard, placed at a fairly deep level, will assist root development. Suitable ready-mixed fertilisers are also available.

**When to Sow:** Sowings are usually commenced in early August and continued until February. Parsnip are susceptible to frost but the late February sowings will produce roots in most districts before the frosts really set in.

**How to Sow:** Parsnip seed is not as robust as Carrot, and some care is necessary in sowing. The soil should be broken down to a very fine tilth along the rows where the Parsnip is to grow. After sowing, it is necessary to consolidate it by pressing it into the soil with the edge of a batten and, after covering, thoroughly firm the surface by the same method. Shallow sowings are preferable and there should not be more than ¼ inch of loam or leaf mould over the seed. To ensure that this does not dry, sprinkle daily and cover with thick paper or any suitable material available.

To allow for the naturally erratic germination of Parsnip seed, sow more thickly than usual.

**Cultivation:** Once seedlings are well above the ground they can be thinned out 4-6 inches apart. Keep the soil surface free of weeds by shallow cultivation right from the early stages. Avoid disturbance to the young plants. Parsnip should not be hilled up. Give liquid manure when plants are about 3 weeks old and again at 6-8 weeks.

**The best Home Garden variety—see page 236.**

## PEAS.

Whilst Peas thrive best in cool weather, the aim should be to ensure that the plants are not flowering when frosts are most severe.

**Requirements:** The ideal soil for Peas is that which is situated in a sunny, well-drained position. If the preceding crop has been Cabbage or a similar leaf vegetable it should be in first-class condition for Peas. They will, however, grow in a variety of soils, but heavy clay loams need the addition of ample quantities of compost or very well rotted manure. In these heavy soils, any tendency to waterlogging is one of the main causes of failure among Peas. These plants are extremely partial to lime, which is best applied when first digging the soil some few weeks before sowing—allow approximately 1 lb. to the square yard. Just prior to sowing the soil can be lightly forked over and a small handful of blood and bone distributed along each 10 feet of row. Mixed plant foods suitable for this crop are also available. Avoid the use of Sulphate of Ammonia or Nitrate of Soda, except where these are mixed in suitable proportions with other fertilisers, as in proprietary plant foods.

**When to Sow:** As already indicated, it is necessary to avoid severe frosty weather when the plants are flowering. In temperate districts, the first sowings are made in the Autumn (about February in Sydney) and again in the late Winter until mid-Spring—about September in Sydney. In areas where cool summers prevail, sowings may be possible through the early Summer, but it should be remembered that Peas also resent excessive heat.

*Even Dwarf Peas are much more successful if grown on wires. They bear heavier and are less likely to "sweat."*

**How to Sow:** For the home garden it is usual to make the rows 2 ft. 6 ins. apart and the soil is drawn out into a narrow furrow, along the bottom of which the seed is sown so that altogether it is covered with about 1-1½ inches of soil or compost.

If, before filling-in, the furrow is lined with burnt lime, this will help to protect the seeds from both birds and slugs. If some support in the form of wire netting or strings along the rows can be provided, it will help to keep the plants off the ground and usually results in much heavier crops.

**Cultivation:** Peas do not require forcing, but it is essential to keep the soil surface well stirred and when about 9 inches high, hill up on either side of each row. Towards flowering time, however, a small handful of ready-mixed fertiliser to each 10 feet of row will provide a good stimulant. A mixture of one-third blood and bone and two-thirds Superphosphate given at the same rate is an excellent combination.

Pods should be picked regularly, even if all are not required for use, so as to ensure the plants crop as long as possible.

**Varieties are important for successful gardening—see page 236.**

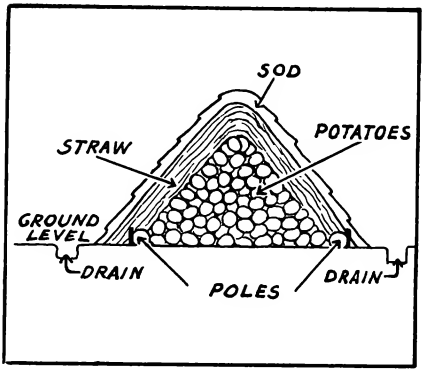
## POP CORN—See SWEET CORN.

## POTATOES.

The planting of Potatoes may not be warranted in very small gardens because other vegetables would be likely to give much better returns for the space available. However, any spare ground not likely to be used between August and December should be given over to this crop, which is also suitable for the first crop in new ground.

**Requirements:** Potatoes will grow in a wide variety of soils but demand first-class drainage. If it can be dug up during the Winter and left in its rough state, so much the better. This crop does not need lime unless the soil is suspected of being very acid or if a test has shown this to be a fact. They do, however, favour ground which has a high organic content, which can be brought about by the addition of compost or rotted manure or the digging-in of green stuff in the early preparations of the soil.

Good seed is essential, for poor seed can produce nothing but inferior results, no matter what cultivation



*Potatoes can be safely stored in this way. Note how soil is built tile-fashion from the ground to ridge.*

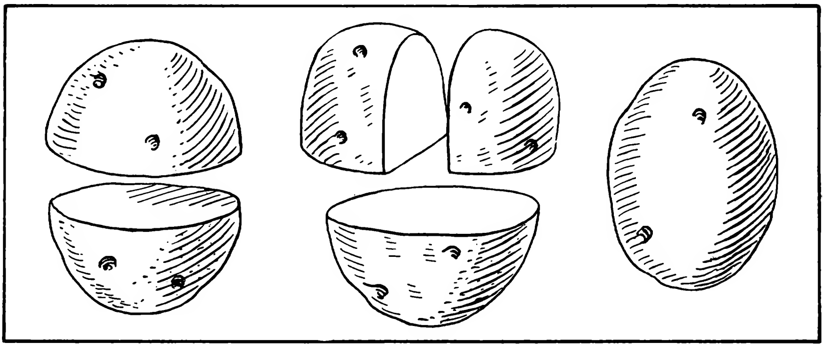
methods are employed. Potatoes are, of course, propagated by the planting of tubers from a previous season's crop and certified as to their quality for seed. Large tubers can be cut as illustrated, but smaller specimens must be left whole. In dry weather, cut tubers are liable to wither and soil must be kept moist if these are planted. As a general guide, it can be said that all tubers less than 2½ inches in diameter can be left whole. Those that are cut must have at least two eyes, more if possible, left on each piece and the cut made so that the area of exposed flesh is as small as possible. The cut area can be hardened by dipping it in ashes or lime.

**When to Plant:** In temperate climates, such as where danger from frost is not expected after September, plantings are begun in August. Shoots do not usually appear above the ground until frosts are finished.

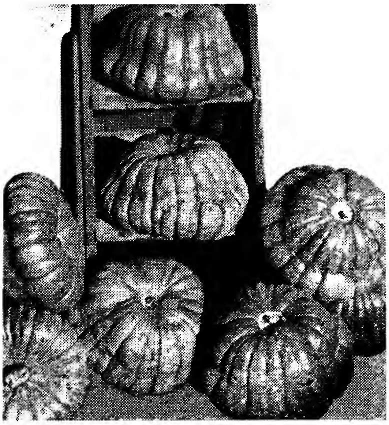
In districts where there is a long growing season, further plantings are commenced in early February and plants are usually ready before the early Winter frosts arrive. This provides a good Winter storage supply.

**How to Plant:** Give the soil a final turning over a week prior to planting and although it should not be too rough, it is not necessary to work it as fine as for sowing seeds. Level it roughly and draw with a hoe or with a narrow shovel. Distribute some ready-mixed fertiliser along each furrow, giving about 4 ounces to every 6 feet of row. Seed is planted along the bottom of the drill, spacing them 14 inches apart and it is afterwards covered with the soil previously taken out.

**Cultivation:** If the soil has been kept reasonably moist, shoots will appear above the ground in a very short time. Hoe the soil up around these, keeping them hoed up as they grow. Neglect of this may expose the tubers to the light, resulting in a high proportion of green specimens which are unfit for cooking. This is particularly important at the flowering stage when as much soil as possible should be banked up around the plants to protect the rapidly growing tubers.



*Small Potatoes for seed should be left whole; larger ones cut in two. Three sets are obtained from very large tubers (see centre).*



*Good strains of Queensland Blue Pumpkin should be even in size.*

Potatoes are not entirely free of diseases, but in Australia, providing clean seed is used, disease is not nearly so prevalent as in some other countries.

## PUMPKIN.

Pumpkins grow successfully in a wide range of districts and there are varieties that can even be grown in the short season districts of Victoria and Tablelands. They provide a valuable storing vegetable for Winter and wherever space is available there should always be a sowing made.

(For Cultivation Notes, see "VINE CROPS"—page 76.)

**Choose from the selected varieties on page 236.**

## RADISH.

Seldom is it possible to obtain really crisp and tender Radish other than those that are grown in one's own garden and, even then, they must grow rapidly if they are to be of good quality.

**Requirements:** Radish need ample quantities of both water and manure and with these ingredients they are probably the easiest of all vegetables to grow. The manure should be well rotted and a 2-inch layer dug into the soil would not be too much. If the ground is very heavy and sand is available, spread a 1-inch layer of this also and dig it in. A small quantity of ready-mixed fertiliser at the rate of 1 tablespoon to a square yard will help them to grow more rapidly.

**When to Sow:** In most districts Radish can be sown at all times of the year. In Winter, a sunny position should be chosen and for continuous supplies make fresh sowings every three weeks.

**How to Sow:** Make shallow drills 1 inch deep and 6 inches apart. Sow the seed thinly along these and cover with about ½ inch of soil. Radish are probably the quickest and easiest of all seeds to germinate, sometimes appearing in 3-4 days.

**Cultivation:** When seedlings have established their second leaf, thin out to 2 inches apart. Keep the soil surface lightly stirred, avoiding any damage to the roots and water freely during dry weather. If they appear to be slow, liquid manure can be given weekly after they have become established. Never let them be checked in their growth or they tend to acquire a strong flavour. Roots are usually ready for pulling in about six weeks.

**Varieties—start with those specially recommended on page 236.**

## RHUBARB.

Rhubarb can either be raised from seed or propagated from divided plants, which are usually available during the Winter. A dozen Rhubarb roots will ensure sufficient stalks for the average family to have Rhubarb included frequently in meals. It is far better to grow a small number with proper attention than a great many that may have to be neglected and therefore produce poor crops.

**Requirements:** Rhubarb favour a rich soil in a fairly moist, well-drained position. Probably no other crop takes such generous quantities of manure, but it also thrives in just moderately rich ground. If available, a 4-6 inch layer of manure dug into the soil will put it in excellent condition for Rhubarb. First, however, it should be dug over some weeks before planting and if necessary limed at the rate of 8 ounces to the square yard. Give a final digging about a week before planting, this time incorporating the manure and a suitable plant food at the rate of 2 ounces to the square yard. A good plant food mixture is half Superphosphate and half Bone Dust.

**When to Sow (and Plant):** Seed is sown during the Spring or early Summer. Roots are planted during the Winter and early Spring months.

**How to Sow:** Seed is fairly easily raised and can be sown in seed boxes or beds, as described in Chapter 5. They are also sown in groups of two and three seeds in the open beds where the young seedlings are allowed to remain and bear. In either case, cover the seed with about ½ inch soil, firming down thoroughly, and keep moist.

**Cultivation:** When plants are thinned out or transplanted, there should be a space of approximately 20 inches between each in the rows and two feet between the rows. The soil round the roots should be well consolidated by pressing firmly with the fingers and the plants watered thoroughly. Once established, they should be kept well watered during dry weather and given liquid manure at regular intervals. They can also be given a dressing of plant food when about half grown, allowing one level dessertspoonful around each plant. There should be no hurry to pull the early stalks that appear, as this weakens the plant, but a few can be taken the first season and more as time progresses. Plants will at times produce flowering stalks which should be cut and growth of the plants stimulated by manuring and watering. Well cared for Rhubarb plants will last three or four years, after which it is better to lift them and break them up into smaller pieces if replanting into fresh positions.

*A young Rhubarb plant practically ready for the first pulling of stalks.*

**Varieties—popular because they have proved best—see page 236.**

## ROSELLA.

A very popular plant in sub-tropical districts and grown for its fruit, which is used for jams and preserves.

**Requirements:** These plants need a fairly long growing season, allowing at least six months between the end of the Spring frosts and the beginning of the Winter. It has been grown with some success in areas with a similar climate to Sydney, but it is necessary to choose a sunny aspect, preferably against a brick wall or house. They favour rather rich soil and a minimum of two inches of manure should be incorporated with it.

**When to Sow:** Normally sowings are made in the Spring when the danger of frosts is over, but where seasons are short, it will be necessary to raise the seedlings in a glass frame or some warm, frost-free spot where they can later be transplanted out.

**How to Sow:** Seeds are sown in boxes or seed beds as described in Chapter 5, and require a covering of about ½ inch of soil. They can be moved to another box or bed when an inch high, setting them 3 inches apart. This ensures good strong plants for final transplanting.

**Cultivation:** Seedlings are transplanted to as much as 5 feet apart, as they grow into fairly large bushes. If manure is scarce, it could be confined to strips, say, 2 feet wide in the

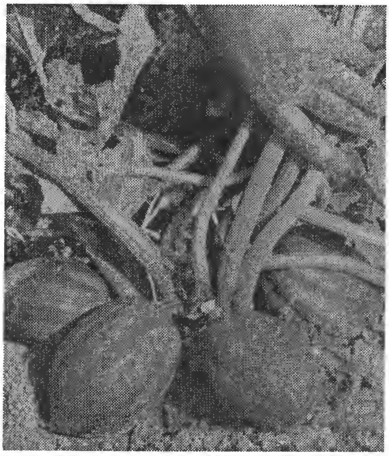


*Table Gem Squash—a bush form of the widely-grown Table Queen variety.*

centre of which the seedlings would be planted. Another method is to dig the manure into a circle 3 feet in diameter and in the centre of this plant the seedling. They require well watering during the hot weather and, when they are half grown, a light dressing of No. 12 Plant Food will stimulate growth. Allow about a level dessertspoonful to each plant.

To use the fruits for jam or jelly, cut off the stalk end and push the calyx out with the blunt end of a pencil. The outer scales are then used for making the jam and it is sometimes the practice to boil the calyx separately, using the juice to make the jam set.

**The Home Gardener's choice—see page 236.**

## SAGE—See HERBS, page 58.

## SALSIFY.

### (VEGETABLE OYSTER)

A most delicious vegetable, making a welcome change from the usual choice of vegetables.

Sowings are made in the Autumn and early Spring.

Cultivation and other requirements are the same as for Carrots or for Parsnips. They like a deep soil which has been manured for a previous crop. Seeds are sown in rows 18 inches apart and, after germination, plants are thinned out, leaving 3 inches between them.

When required for the table, roots should be boiled until soft, then served with melted butter.

**The next step is choosing a good variety—see page 236.**

## SHALLOTS

Very useful for flavouring in salads and are grown from bulb or clove. Supplies are generally available during the months of February/March. There are two types—Small French and Large Russian; the former however being the most popular.

## SPINACH.

This name has been given to numerous plants or leaves of plants, but the varieties known as Round or Prickly Seeded Spinach are the true Spinach. It is said to have more iron than Silver Beet and for this reason dietists recommend as much as possible to be included in the diet, especially for young children.

**Requirements:** Spinach grows in almost any moderately rich garden loam providing it is well drained and dug. Prepare some weeks before planting by turning over the soil and incorporating a generous amount of manure or compost. If the latter only is used, the addition of some plant food, 1 ounce to the square yard, will be necessary. Fork this lightly into the soil about a week before planting and give it a good watering.

**When to Sow:** In temperate climates, sowings are possible during most of the Autumn, and in cool climates, Spring is the best time.

**How to Sow:** Make shallow drills 15 inches apart and ½ inch deep. Sow the seed along the bottom of these, firming it well into the soil and then covering it over with some dry manure or the soil that has been taken out of the drill. Keep moist until seeds germinate.

**Cultivation:** Thin out the seedlings, leaving 12 inches between each one and taking care not to disturb those that are left. Plants need to be grown quickly, similar to Lettuce, and can be given liquid manure regularly once they are established. It should be possible to pick leaves 11-12 weeks after plants appear above the ground and if regular sowings are made every three weeks it is possible to have supplies over a long period. Plants will also shoot again after picking.

**Choose from the selected varieties on page 236.**

## SQUASH.

In Squashes there are really two main types: the Summer Squashes which are similar to Marrows and non-keeping; the Winter Squashes or long keeping varieties are very similar to Pumpkin.

(For Cultivation Notes see "VINE CROPS"—page 76.)

**Varieties that are best for the Home Garden—see page 237.**

## SWEET CORN.

An ever-increasing number of gardeners are growing Sweet Corn as a Summer vegetable and as a substitute for Peas. It has a very high nutritive value and is one of the few vegetables containing fats. Unfortunately, much "Sweet Corn" offered commercially is nothing more than young Maize and is not nearly so palatable as the true Sweet Corn.

**Requirements:** Sweet Corn, as with all members of the family, is a very gross feeder and ample quantities of manure are advisable to grow a good crop. It needs a plentiful water supply during the dry weather, during which period a thorough soaking once a week is advised. They could also be given a generous dressing of No. 12 plant food, say, about 2 ounces to the square yard, which should be dug in and well watered a week before planting.

**When to Sow:** Sowings are commenced as soon as frosts are over and continued until mid-Summer. Cobs should be ready for cooking within 2½ months of sowing the seed.

**How to Sow:** Seeds are dropped into shallow furrows about 1½ inches deep, spacing them 15 inches apart. Sometimes two seeds are dropped in each position to make certain of one good plant. Each row is spaced 3 feet apart, and other crops, such as Lettuce, can, if desired, be planted in between.

Another method is known as "block" planting and this means that plants can be grown much more closely together, say, 12 inches apart each way. This method ensures a much more even spread of pollen and therefore better filled cobs. Because of the intensive culture with such close plantings, rather more heavy feeding and watering are necessary than by the row method.

Sweet Corn provides a good wind shelter for most garden vegetables, and it is often a practice to plant Sweet Corn around the exposed sides of the Melon or Cucumber patch.

**Cultivation:** When the plants are about 2 feet high, the soil can be hilled up around them much in the same way as Potato, but this should not be overdone, otherwise roots can be easily damaged or exposed.

The cobs are ready for use when the silky sheen disappears from the tassel which protrudes from the end of it. It is much better to pull the crop when a little unripe rather than a little overripe.

Cobs should be used as soon as they are picked, as they deteriorate rapidly. The usual method of cooking them is to boil them whole, much in the same way as Peas, and serve with butter or white sauce.

**Varieties—make a suitable choice from those on page 237.**

## SWEET POTATO.

These hardy plants provide a welcome addition to the Autumn and Winter vegetables. They are not grown from seed but from rooted cuttings usually available about October.

**Requirements:** This crop thrives in a light sandy loam and a warm sheltered position. It will also give good results in moderate loams but resents any trace of water-logging after rain. Heavy manuring is not recommended, as this tends to increase the growth of the foliage at the expense of the tubers. However, land that has been manured for a preceding crop is ideal. Any artificial fertiliser with an excess of Sulphate of Ammonia or Nitrate of Soda should be avoided. A good mixture is one part Sulphate of Ammonia, three parts Superphosphate, and one part Potash, measured by weight. Allow 4 ounces of this to each 5 yards of row, Ready-mixed plant foods are also available and have a similar analysis.

Before planting, ground should be well dug over but not necessarily deeply, and allowed to settle for a week or two.

**When to Plant:** The planting season extends from October to November and there should be approximately five frost-free months ahead if the tubers are to fully mature.

**How to Plant:** The rows are marked out 2 ft. 6 inches apart and the rooted cuttings about 18 inches apart in the rows. Avoid deep planting, for the natural habit of this plant is to produce its tubers near the surface.

**Cultivation:** Only very shallow cultivation must be practised, mainly for keeping down the weed growth. They require ample water during dry weather and irrigation is usually found the best method. Plants will sometimes root at the joints of the trailers but this can be prevented by lifting them occasionally with a fork.

A tuber is ready for cooking if after being cut it dries white, but if it exudes a milky juice which turns greenish - black, it is immature. Normally the crop is dug when the plants are cut down by the first frosts, but quite frequently there are tubers ready for digging four months after planting.

## TAMPALA.

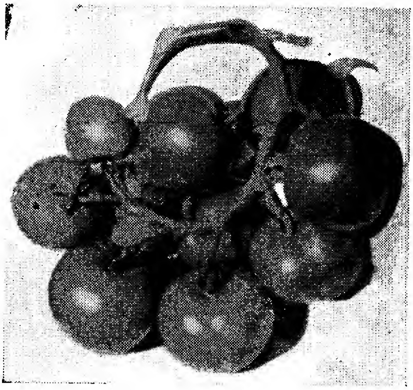
A green leafy vegetable, used in the same way as Spinach and other "greens." Appears to stand our hot dry Summers, when regular pickings can be made from fully grown plants. Sometimes plants are allowed to grow only 6 inches high and are used whole. For this purpose regular sowings should be made every two or three weeks.

Sowings are made in the early Spring and continued throughout the Summer. They thrive in a moderately rich loam and do not need heavy watering. No transplanting is necessary, unless plants are to be fully grown, in which case space 12 inches apart.

**THYME—See HERBS, page 58.**

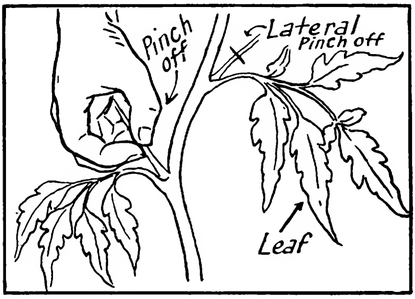
## TOMATO.

There are few gardeners who do not count it one of their greatest aims to grow a regular supply of freshly picked Tomatoes for the table throughout the Summer months. Perhaps a little more trouble is involved than with most crops of vegetables, but despite troubles affecting these plants, there are simple steps than can be taken that will do much to prevent them. In most districts the later-sown crops are more successful than those of which sowings are made in the early and late Spring when the incidence of spotted wilt seems to be much higher. But for all that, they are well worth growing and there are few achievements more satisfying than a bowl of red ripe, home grown Tomatoes.



*Red Cloud Tomato—one of the most popular early maturing varieties—bearing medium-sized fruit of finest quality. Suitable either for growing on stakes or without support.*

**Requirements:** Tomatoes require clean, deeply dug soil in a position sheltered from strong winds. They favour a warm, sunny spot, and should not be grown near or under trees. Growing this crop in the same ground without an interval of about three years should be avoided owing to the transmission of soil diseases. Practically any soil, from sandy loam to heavy clay, will grow Tomatoes, providing it is put in good condition. A sandy soil will benefit from generous applications of rotted cow manure, whereas stable manure is pre-



*Pinch out laterals growing at the fork of the leaf stem and trunk.*

ferred for heavy soils. Where possible, land should be prepared during the winter months and dug over in a rough condition and left to fallow and unless it is suspected of being very acid, liming is not necessary for this crop. A further digging a month before planting is an advantage, with a final light forking just prior to planting time. This should break it down into fine particles necessary for the young seedlings to take an immediate hold. Complete plant foods for this crop are available, but a good home mixture is equal parts Bone Dust and Superphosphate, allowing a heaped teaspoonful to each plant, or 4 ounces to the square yard.

**When to Sow:** The first sowings are usually commenced when the danger of frost is over, which is about mid-Spring, but some gardeners are successful with early sowings, for which a protected, warm position is necessary. Seedlings are raised in glass frames and later hardended off. Sometimes they are planted out while frosts are still prevalent but must be sheltered each night with bagging or heavy hessian made into "tents." Sowings are continued throughout the Spring and early Summer and late crops finish about mid-Summer. A period of five frost-free months should be allowed for when making a final sowing. Notes on sowing and transplanting in Chapter 5 should be referred to.

**How to Sow:** Either seed boxes or seed beds are suitable but seedlings must not be too crowded and allowed to develop good thick stems of a rich purple colour at the base. Two methods are possible; one is to prick-out the young plants when only about an inch or so high into prepared beds, spacing them about 3 inches apart, and the other is to sow sparsely in rows 3 inches apart and later thin out to the same distance in the rows. Some gardeners claim they are getting better results by sowing the seed direct into the beds where the plants are to grow and there is evidence that such plants are not so susceptible to disease. The method is to sow two or three seeds into groups at the correct distance apart, and if all germinate, the surplus are discarded. Tomato seed has a vigorous germination but may be slow and difficult during cool or cold weather. It is covered with about ¼ inch of well firmed fine soil and kept moist.

**Cultivation:** Owing to the limited space in most home gardens, the stake method of growing them is preferred. Each plant is provided with a 6-foot stake at the time of planting, and distance between the rows should be 3 feet, with 2 feet between the plants in the rows. Where space allows, however, some varieties can be grown on the ground similar to Cucumbers or Marrows. About 4 feet distance between the plants each way is necessary. This method is an advantage and enables the plants to shelter their roots. Not all varieties are suitable for this method and the choice should be confined to the larger fruited kinds with medium to dwarf growth.

Under this method little or no pruning is necessary, but stake-grown Tomatoes are lateral-pruned as the plants develop. The diagram shows that laterals grow at the fork of the leaf stem and main stem. They should be pinched out as soon as they appear. The care of the crop consists of keeping down weed growth by very shallow cultivation and avoiding any damage to the roots which are always close to the surface. Watering should be regular and should not be left until the soil is nearly dried out then followed by a heavy soaking. This tends to induce black spots on the fruit. When the plants are about 12 inches high they can be given a teaspoonful each of the mixed fertiliser and a further application as they commence to fruit.

**Pests and Disease:** Many of these could be largely avoided by clean methods of cultivation. Weed growth surrounding the beds should be kept down and the seed box soil obtained from a spot where there is no fear of contamination from the previous crop. Many of the fungus diseases can be prevented by fortnightly sprayings of Bordeaux mixture right from the time they are seedlings. Of recent years, sprayings of Tartar Emetic have been found to keep plants practically disease free. It is, however, an extremely dangerous substance and should be used with great care. It should never be used on plants that are showing fruit.

The insect pests that mainly attack these plants are Tomato stem Borer and Tomato Mite. Both can be controlled with a spray of ½ lb. Arsenate of Lead to 4 gallons of water. The borer is a small grey-green caterpillar, ½ inch in length, that bores into the main stems.

**Varieties culled from the World's best—see page 237.**

*In the "bush method" of Tomato culture stems should radiate from the main trunk.*

## TURNIP.

The most tender Turnips are those which are grown rapidly and then pulled while they are still young. The dislike of some people for Turnips is no doubt due to purchasing the over-matured roots that are so often offered for sale.

**Requirements:** Turnip requires a similar cultivation to Carrots, although slighter richer soil is desirable. Over-richness, however, tends to produce very heavy top growth and perhaps small roots. A good fertiliser is equal parts of Bone Dust and Superphosphate, used at the rate of 2 ounces to the square yard. This should be used in conjunction with any rotted manure that can be dug into the soil. They need ample water during dry weather, but otherwise are a very hardy crop. Ground should be prepared some time prior to the sowing and allowed to settle. About a week before the seeds are sown give a further light digging, and at this stage the fertiliser can be incorporated.

**When to Sow:** In most districts, sowings are made during the Autumn but can be resumed again in the early Spring. With some of the early varieties, such as Yates' Flat Express, it is possible to sow in all but the very hottest period of the year.

**How to Sow:** Seeds are sown where the plants are to grow, as they do not transplant easily. Shallow furrows about 1 inch deep are made 9 inches apart. Along the bottom of these the seed is sown sparsely and lightly pressed into the soil with the edge of a batten or the back of a rake. Seed is then covered with about ½ inch soil, leaving a slight furrow still visible and into which the moisture can collect. Keep the seed moist from the time the seeds are sown until the seedlings are established.

**Cultivation:** Roots should be thinned out to about 6 inches apart, and, for Swede Turnips, 9 inches apart, with 15 inches between the rows for this type. Keep the soil weed-free by shallow cultivation and do not hill it up around the roots. When the plants commence to bulb, give a further dressing of the fertiliser already recommended, allowing about 2 ounces to each 5 feet of row. If the plants show any signs of check, make sure that the water supply is sufficient, but do not apply heavy forcing manures, such as Sulphate of Ammonia, or Nitrate of Soda. Some weak liquid manure is permissible if the plants appear to have stopped growing.

**Varieties—start with those specially recommended on page 237.**

## SWEDE TURNIP.

These need similar cultivation, although sowings are begun earlier, about February, in districts similar to Sydney. It is essential they form good root growth before the arrival of the early frosty weather. In cold climates it will be necessary to sow as early as December or January. The frosty weather increases the value of the roots, making them more tender and far more palatable.

Quite frequently Swede Turnips grown for home use are no more than the field cattle variety and, of course, tough and stringy. Roots from good, reliable strains, such as Yates' Champion Purple Top, when grown under normal conditions, are both tender and palatable.

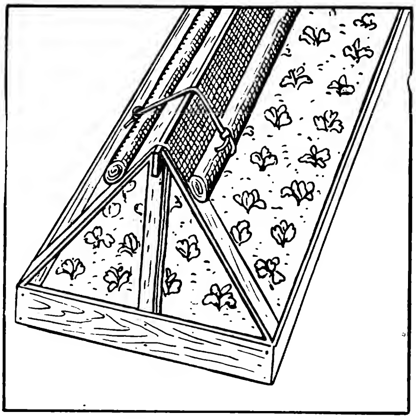
**Varieties—see page 237 for our recommendations.**

## VINE CROPS.

### (Cucumber, Melon, Pumpkin, Marrow, Squash)

These crops form a major portion of the home gardener's Spring sowing programme, and as their cultivation is almost identical they have been grouped under one heading. However, the suitable home garden varieties of each of the above vegetables will be found in Chapter 16 in their correct alphabetical order. The choice of varieties is important to the home gardener who can often grow those which the commercial grower finds unsuitable because, although they are the best for the table, they may not be suitable for carrying to market or for retail trade.

**Requirements:** These plants like fairly rich soil, but heavy fertilising is undesirable, especially with those containing a lot of Sulphate of Ammonia or Nitrate of Soda. No. 5 Plant Food is recommended for these crops. If soil has not previously been manured during the preceding 12 months, spread a 2-inch layer of rotted manure over the areas to be sown and dig this in. For those who wish to mix their own fertiliser, a good mixture is 2-3rd Superphosphate to 1-3rd Blood and Bone, with a small quantity of Potash. Allow one handful to each group of plants. Over-fertilising will cause heavy foliage growth, and probable failure of the fruit to set.

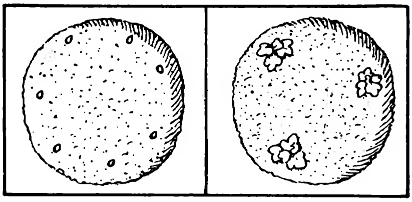


*Tomato seedlings can be protected in this type of frame from winds, frost and heavy rain. Hessian coverings can be rolled down on one or both sides as required.*

Prepare the soil some weeks before planting, giving it a thorough and deep digging, without actually bringing the subsoil to the surface. It is not usually necessary to lime the ground for vine crops, but if never previously limed, the addition of 8 ounces to the square yard is advisable. A week before planting, dig the soil again and allow it to settle, at the same time incorporating the manures as advised above.

**When to Sow:** Sowings are commenced in the early Spring but many failures are the result of cold weather and cold soil. These very early sowings must therefore be, to some extent, experimental, unless warmth can be given artificially, or seedlings are raised in containers, as described on page 35. The ideal sowing time is when the ground has warmed up, about mid-Spring, and all danger of frost is over. Later sowings could be made in the early Summer and, providing about 5 months of frost-free conditions still remain, even later sowings are possible.

**How to Sow:** Seeds are sown in groups which are often wrongly



*Showing arrangement of seeds when sown and plants finally thinned out.*

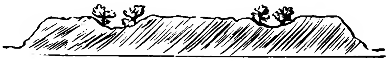
termed "hills." This term may be misleading to the beginner, who proceeds to make rather high pointed mounds, which are quite unsuitable for the culture of these plants.

It does no harm to raise the level of the soil in which the plants are to grow by digging a shallow trench (6 inches deep) on either side of the area and throwing the surplus soil on the bed that is now made. This is particularly true in heavy or poorly drained ground. However, the actual seed bed which might be 2-2½ feet in diameter should be slightly scooped out, making a shallow "dish" in the soil surface. See diagram on this page.

Usually there are from 5-6 seeds in a group and if they germinate freely, the surplus are pulled out, leaving three plants. The table on page 40 gives some idea of the depth and other details in planting seed, including the distance between each "hill."

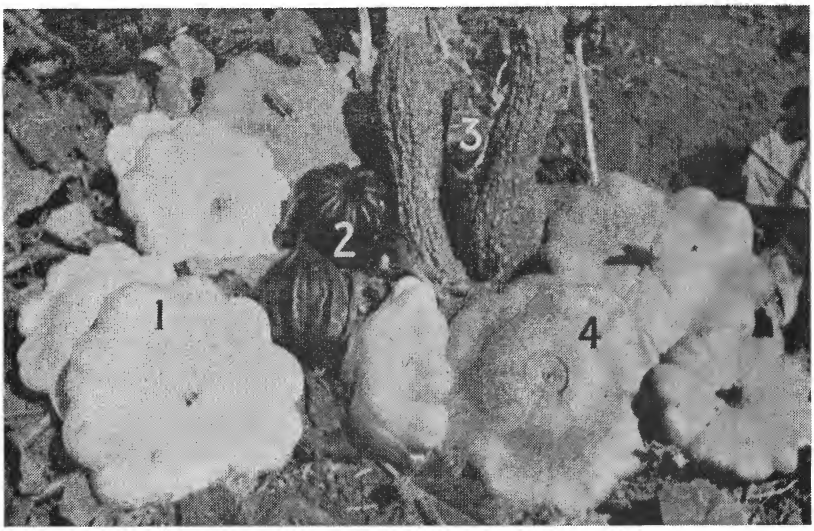
Where space is limited, it is a good practice to nip off the ends of the trailers, in which case hills can be rather closer together. This subject will be dealt with later. After sowing the seed at the required depth, cover with a light mulch of rotted manure or compost. To ensure the soil does not dry out, hills can be covered with bags or tarred paper which, however, must be removed immediately there are any signs of germination.

**Cultivation:** Most vine crops need ample water during their early growth, with a gradual tapering off of the supply as the fruit ripens. This is particularly true of Water Melons. They are fairly shallow rooting plants and weeding must be undertaken with care so as not to damage the surface roots. The same care is also necessary in lightly harrowing the surface. The large leaves that soon grow shelter their roots and swamp most weeds, particularly those around the roots. Pumpkins and Melons may prove too rampant for most gardens and when their trailers reach a length of about 5-6 feet and carry a good number of flowers, they can be pinched off at the ends. This will often assist in the setting of the fruit, and maintain a greater size. There are occasions when crops are very poor owing to the failure of the flowers to set fruit.



*Raising the level of the soil for Vine Crops is a good plan but plants should grow in a slight depression.*

Hand-pollination may overcome this problem, and it is not altogether a very difficult process. The main thing is to be able to distinguish between the female and male flowers. The latter carry stamens which, in their turn, carry the pollen. The stamens are fully exposed by stripping off the petals, and, with a camel-hair brush, some of the pollen is transferred to the centre of the open female flower. It can also be done by the direct contact of the stamens, and the brush dispensed with. Female flowers are also distinguished from the male by the slight swelling at the base of the bloom. Once plants are thoroughly established and appear to be growing without check, very little other cultivation is necessary. Cucumbers should always be picked while they are young, and Water Melon should have a hollow sound when tapped with the thumb if it is ripe for eating. Rock Melons commence to crack at the junction of the stem when they are ripe, and will break away with a slight pull. Those that need to be twisted to loosen them are invariably unripe. Picking a Pumpkin before it is actually ripe does not seem to impair their eating qualities, but there is always a certain amount of withering at the stem which indicates ripeness.



SQUASHES.

1. *Early White Bush;* 2. *Table Queen;* 3. *Crookneck;* 4. *Early Golden Bush.*

## Pests and Diseases.

### DISEASES.

Mildew in Pumpkins, Cucumbers, Melons and other vine crops is the disease that will most worry the home gardener. There are two kinds, but Powdery Mildew is more common and it may cause damage to Rock Melons, Cucumbers, Pumpkins, Squashes and Marrows.

It is first recognised by white powdery spots appearing underneath the older leaves and also the upper surface of the leaves where they are shaded from the sun. The spots quickly merge and soon cover the whole leaf.

Downy Mildew will be found mainly on Cucumbers and Rock Melons, the leaves of which are infected by sparse white downy growth with the addition of yellowish spots which, however, are not usually round but pointed. The chief control measure is to spray with weak Bordeaux Mixture, 3-4-40, for the mixing of which see page 213. This will also control Anthracnose, another disease affecting these plants.

Sulphur dusts also control Powdery Mildew but may injure the leaves of Rock Melons and Cucumbers. However, they can be safely used on Pumpkins, Squashes and Marrows, and should be applied at weekly intervals.

As a prevention all sprays, whether Bordeaux or Sulphur, should be applied once a week, commencing when the plants are quite young.

### PESTS.

**Pumpkin Beetle:** Attacks by this pest result in the plant being rapidly eaten and finally reduced to a skeleton. Spray with half strength DDT Agricultural Emulsion. See warning on page 209.

**Green Vegetable Bug:** This is a sap-sucking insect which usually attacks the young shoots which soon wilt. Spray with DDT as for Pumpkin Beetle.

**Red Spider:** Leaves become mottled with fine webbing and greyish-red mites are seen on the lower surfaces of the foliage. Spray with lime sulphur.

**Aphides:** Not usually troublesome to vine crops, but attacks are known; see page 207 for control.

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***The garden is but the outdoor continuation of the home.***

## CHAPTER 7.

# THE FLOWER GARDEN.

**The majority of flowering annuals, biennials and perennials (these terms are explained later), require very similar soil conditions and treatment. There are, however, some differences in their requirements which it is necessary to note if they are to be cultivated successfully. For instance, some like the full sunshine, whilst others prefer partial shade. Some can be sown in the Spring, others in the Autumn, and still others most of the year round. There are those that prefer fairly rich, moist soil and those that do well in rather poor loam and under dry conditions. It is, of course, impossible to cover the many hundreds of these plants that are known to the gardening world, but an attempt has been made to describe those that are more widely grown and sought-after by home gardeners.**

**The successful cultivation of these plants is largely a matter of common-sense, plus a little experience, and applying the general rules of gardening, such as outlined in the Chapters in this book—"Soil Fertility," "Starting a Garden," etc. Therefore the cultivation notes of each flower mentioned in this Chapter do not include all the details of cultivation, such as preparation of the soil, sowing the seed, unless there are some special requirements to which the home gardener should give attention.**

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### ANNUALS.

These are plants which complete their span of life from seedlings to flowers and finally seed pods within the one year.

Many of them bloom within 3-4 months of sowing seed and complete their whole life to the seed pods in, say, 5-6 months.

There are both Summer flowering and Winter flowering annuals. The former are sown in the Spring and bloom in the Summer, and the latter are sown in the Summer and Autumn for Winter and Spring blooms.

In some flowers there are both annual and perennial varieties. Lupins, Alyssum and Statice are examples of these.

Many so-called annuals are really perennials and in cold climates may last for 3 or 4 years, but in our warmer districts complete their effective life much more rapidly.

Some gardeners object to annuals because they have to be replaced each season. This is perhaps because they have relied on them almost entirely for garden display. But annuals should be complementary to other garden plants. No other plant gives such a colourful display in so short a time and for so little trouble. They are the spice of gardening, for they can be continually changed from season to season and all sorts of new "discoveries" are made. They should not be confined to narrow borders only but should be allowed to display their riot of colour in large masses. Plantings of annuals can be so planned that flowers are available (except in cold climates) at practically all times of the year.

### BIENNIALS.

These plants require two years or part of two years to reach the flowering and the seeding stage from the time they are sown.

In warm and temperate climates very few biennials are grown because mostly they are plants suited to cold climates. A few examples are Canterbury Bells, Foxglove, Hollyhock and Sweet William. Annual types of some biennials are now being evolved, notably Canterbury Bells and Hollyhock.

In cold climates, biennials are usually sown in the Spring and make growth during the following warmer weather, forming good crowns and roots. As the Winter approaches they die down and remain semi-dormant until the following Spring, when they rapidly come into bloom. In some cases it is possible to grow these biennials in warm climates by sowing them in the Autumn to produce flowers the following Spring. It is seldom, however, that they give such splendid flowers as they do in the cooler climates.

## PERENNIALS.

Under this title are grouped plants which cannot be correctly termed annuals or biennials. Some may not have an effective life of more than 2-3 years, but others, if conditions are favourable, remain more or less permanent. In this chapter, however, we are concerned mainly with those flowering perennials which bloom the first season from seed and those herbaceous perennials which die down during the Winter and make new growth in the Spring for Summer flowers.

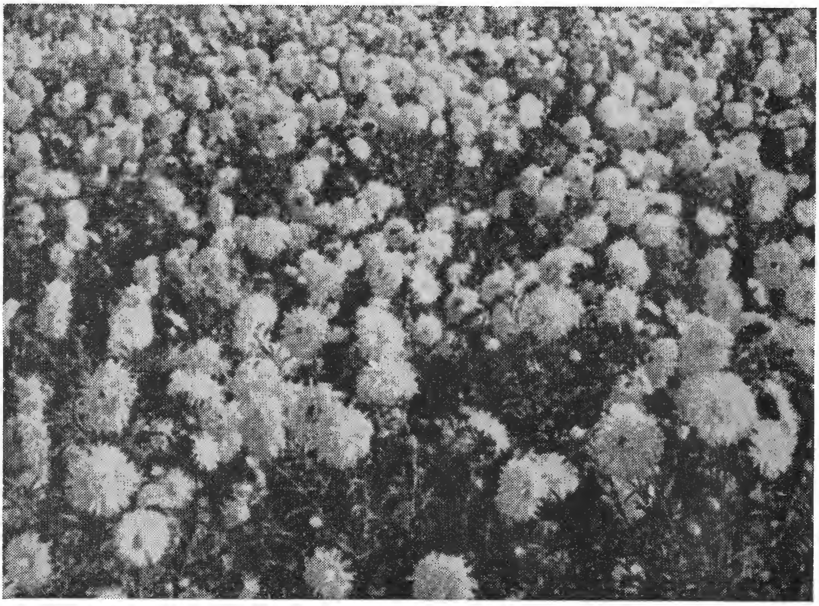
Most perennials produce their blooms at the same season every year, but some, such as Carnations, have been bred to bloom for quite an extended period, although they are usually far more prolific at one particular season.

Among the flowering plants termed perennials there are many that are best treated as annuals in our warm districts. Examples are Antirrhinum, Bellis Perennis (Double Daisy), Stocks, Cheiranthus and Petunias. In cold climates, however, their effective life may be three years.

It can be fairly safely said that those perennials that produce their flowers quickly from seed, say within six months, are ones which in warm climates should be sown freshly each year. This does not mean that some of them, particularly Antirrhinum, will not stand cutting back at least once and give quite a good display of blooms at their second flowering.

Another division of perennials is the bulb plants, such as Anemone and Ranunculus, which bloom the first year from seed but form bulbs which can be replanted or left in the ground for a further flowering the following season.

Some perennials, particularly Carnations, Chrysanthemums and Dahlias, are propagated by two methods—sowing the seed, or by propagation such as taking cuttings, layering or dividing plants. The reason why they are not always grown from seed is that named, or catalogued, varieties cannot be obtained by this method and to obtain these it is necessary to either purchase the plants or to propagate them by any of the above methods.



*Asters—one of our most popular annuals and one which, under suitable conditions, is not difficult to grow.*

As an example, seed could be collected from the flowers of a pink Carnation such as the well-known Salamander, and then sown to produce a batch of seedlings. None of the flowers from these seedlings would necessarily resemble the parent plant and there may be a whole variety of colours and types, some inferior and some probably superior. But, providing that seed is collected from good parent stock, it is a most fascinating hobby to grow such plants from seed because not only is it certain that there will be a wonderful display of colour, but also there will be many interesting variations to examine and, in all probability, one or two varieties will be so outstanding as to be worth giving a name and keeping for future propagation.

# CULTIVATION NOTES

of

# Popular Annuals, Biennials and Perennials usually grown from Seed.

## ACROCLINIUM.

### (EVERLASTING DAISY)

A hardy "everlasting," the flowers of which can be dried and kept indoors without water for many weeks.

**Requirements:** This plant will grow in almost any garden loam, from light to heavy, and does not need large quantities of manure, but if the soil is suspected of being poor a 2-inch layer of rotted manure well dug in will improve it. Choose a sunny, well drained position.

**When to Sow:** Autumn is the best time for most climates but in districts with cool Summers, Spring sowings are also successful.

*Acroclinium makes splendid decoration and there are some very attractive colours.*

**How to Sow:** Seedlings are not usually transplanted. Seeds are therefore sown in the borders where the plants are to flower. A shallow furrow about 1 inch deep is made and seed distributed sparsely along it, then covered with about ½ inch soil, leaving a shallow depression which will help to retain moisture.

**Cultivation:** Keep the soil moist until the young seedlings are well established. After it is considered they have all germinated they should be thinned out to 9 or 12 inches apart. If there is more than one row, leave 12 inches between each. These plants usually need very little attention apart from water during dry weather and a dressing of No. 12 plant food or an application of liquid manure when they start to bud. The soil should be kept weed-free by shallow cultivation only, taking care not to go too close to the plants with the hoe.

**The next step is choosing a good variety—see page 243.**

## AGERATUM.

Many gardeners will probably know this as Floss Flower. It is a half-hardy annual, standing moderate frosts, but mainly grown for Spring and Autumn flowering. All varieties make splendid border plants and their soft blue flowers are always welcome, both for garden display and indoor decoration.

**Requirements:** These plants will thrive in the poorest of soils, but respond to a little attention in the way of making the soil richer with rotted manure and a little No. 12 fertiliser, as well as giving water during dry weather. Nevertheless, they stand a fair amount of drought. They are seen at their best when grown in a sunny position but will give fair results in the semi-shade.

**When to Sow:** Sowings are possible at practically all seasons but in very cold climates seeds would be difficult to raise in Winter unless in a warm place.

**How to Sow:** Seeds can either be sown in seed beds and the seedlings afterwards transplanted or direct where the plants are to bloom. Cover with soil equal to about twice the thickness of the seed itself, and keep moist. See Chapter 5 for hints on Seed Raising generally.

**Cultivation:** Seedlings are thinned out or transplanted to a distance of 9 inches apart. As already indicated they need very little care apart from cultivation to prevent competition from weeds and perhaps a little liquid manure at regular intervals to increase the amount of blooms. Spent flowers should be cut back hard.

**Varieties that are good for your garden—see page 238.**

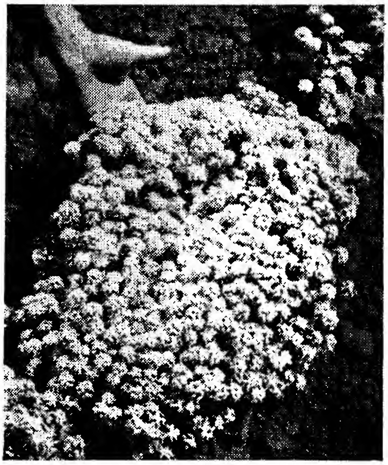
## ALYSSUM.

"Sweet Alice," as this plant is more often called, is not a new flower but in recent years has gained tremendous popularity as both an edging and a border plant. Some varieties are fragrant and all lend themselves to rockery and wall garden culture.

**Requirements:** Although Alyssum does quite well in the semi-shade it produces a much heavier mass of bloom in the sunshine. It thrives in all types of soil and conditions, but a moderately rich loam suits it best. It resents excessively damp conditions.

**When to Sow:** Sowings are possible at almost any time of the year but in temperate climates, similar to Sydney, Autumn and early Winter sowings will give the best results.

**How to Sow:** Seedlings can be either transplanted or thinned out after sowing the seeds in the beds where they are to bloom. They are not difficult to raise but should be only lightly covered with about ⅛ inch soil and kept moist. Whether thinned out or transplanted, leave about 3 inches between the plants and 4 inches between the rows.



*Carpet of Snow Alyssum is aptly named.*

**Cultivation:** Water regularly during dry weather, giving a good soaking say once a week rather than frequent sprinklings. Destroy the weeds while they are still very small, otherwise the fine root growth will be easily damaged if big weeds are pulled out. Regular applications of liquid manure towards flowering time will increase the flush of bloom. Cut back all faded blooms and in the Perennial variety prune the plants within 2 inches of the ground after the flush of flowers has finished and so encourage the next crop.

**Varieties for better gardens—see page 238.**

## AMARANTHUS.

One of our brightest and showiest Summer annuals and widely grown for its brilliant foliage and ability to stand Summer heat.

**Requirements:** These plants revel in hot, sunny positions and although they stand a certain amount of drought they will be seen at their best if given ample water during dry periods. The soil should be well dug a week or two before planting and if well-rotted animal manure is available this could be dug in at the same time. Suitable ready-mixed fertiliser, such as No. 5, could be used if manure is not available. This should be distributed at the rate of one tablespoonful to the square yard.

**When to Sow:** Sowings are commenced in the Spring, when the danger of frost is over, and continued until Summer.

**How to Sow:** It is usual to sow the seeds where the plants are to flower, afterwards thinning out the seedlings to 18 inches apart. However, they can also be transplanted, allowing the same distance between each plant. Seed should be covered with about ¼ inch sifted loam, pressing this down firmly with a flat piece of board: keep moist.

**Cultivation:** Maintain an ample water supply while the plants are growing and keep down weed growth by shallow cultivation. As the hot weather approaches, a good mulching of compost or well rotted manure will protect the surface rooting plants from the hot sun. Give liquid manure when the plants reach about a foot high and from then on at intervals of about 10 days. If there is no organic liquid manure available use Sulphate of Ammonia in liquid form, as described on page 26.

**Varieties—our choice for Home Gardens—see page 238.**

## ANEMONE.

Anemone can either be grown from seed or bulbs, and for the keen gardener the first method has a lot of merit. All sorts of combinations of colours are likely to result. It is not difficult seed to raise if the hints in Chapter 5 are followed fairly closely. The plants flower within a few months of sowing and form small bulbs which can be lifted for the following year's planting.

**Requirements:** Anemone like any good garden soil which is fairly rich and during the Winter will favour a good mulch of cow or stable manure. The ground should be kept well scarified in between the plants once they start to grow.

**When to Sow:** The best time for sowing is from January to April and the earlier sowings are more likely to produce successful blooms the first season. However, under ordinary conditions, any of these Summer to Autumn sowings should give quite a nice display of Spring blooms.

**How to Sow:** In seed beds, as described in Chapter 5.

**Cultivation:** The planting of the seedlings is usually done as soon as they are large enough to handle and the spacing between them can be from 6 to 8 inches, leaving about 10 inches between the rows. After the Spring-flowering, plants die down and little bulblets are formed in the ground. These can either be left until next year or dug up and replanted the following Summer. Anemone are fond of moisture and on no occasion should the young seedlings be allowed to dry out.

**Varieties our customers grow—see page 238 and bulbs 172.**

## ANCHUSA.

### (CAPE FORGET-ME-NOT)

An unusual blue flower not unlike the English Forget-Me-Not but of a much deeper blue.

Sow during the Autumn months in seed boxes, covering the seed with ¼ inch of soil, which is pressed down firmly over it.

When seedlings are about 2 inches high they are ready for transplanting. Dwarf varieties are spaced 12 inches apart, while the tall Italica is given 18 inches. They favour a medium rich loam and ample water during dry weather.

**Varieties which are hardy in Australian gardens—see page 238.**

## ANTIRRHINUM.

### (SNAPDRAGON)

Although the Antirrhinum is a true perennial, much better results are obtained if fresh sowings are made each year. Plants can, however, be cut back once after the first flowering for a further flush of blooms.

**Requirements:** The soil for Antirrhinums should be deeply dug to a depth of 8 to 9 inches if this is possible without bringing the subsoil to the surface. It will be greatly improved by the addition of a 2-inch layer of any well-rotted manure but Antirrhinums often grow to perfection in quite poor soils, providing they are well drained. An application of lime (1 lb. to 2 square yards) will sweeten and improve the texture of the soil. It is worth remembering that these plants seldom fail to grow to perfection in new soils which have been well dug and sweetened with lime.

*The Tall Snaps are always great favourites.*

**When to Sow:** To obtain really first-class stems and flowers the seed should be sown so that the plants flower during the cooler seasons, usually late Autumn, Winter and Spring. This means that, as the plants require approximately five months to flower, the time of sowing must be judged accordingly.

**How to Sow:** The seed beds or boxes should be made up of a well-sifted compost of equal parts loam, sand and rotted manure or peatmoss. A better method than broadcasting the seeds is to sow them across the box or bed in straight lines, which can be lightly marked out with a nail. The seed is very small and needs only a light covering of the above compost but, before covering, it can be lightly but firmly pressed on to the soil surface with a piece of flat board.

Ants are often responsible for removing these seeds from the soil. (See notes on page 33.)

With regular watering the seedlings will be ready in about six weeks and when 1½ to 2 inches in height, they are fit for transplanting. The "Tall Giants" should be planted in rows spaced 15 inches apart with 12 inches between the plants. For the Semi-dwarf type, the measurements are 12 inches and 10 inches respectively.

**Cultivation:** If the plants show a tendency to bloom too soon, they should be nipped back until showing the prospects of at least a dozen bloom spikes. A well grown plant will carry up to 24 spikes. When cutting blooms for the house or removing spent flowers, it is necessary to prune the stalks within 3 inches of the base, so that the second "flush" of flowers will again be carried on long, strong stems.

To obtain a vigorous second growth the plants may require some stimulant. Nitrate of Soda or Sulphate of Ammonia—1 dessertspoonful to a gallon of water—will assist the young growth. A side dressing of Superphosphate—1 dessertspoonful around each plant and watered in when the plants are cut back—will increase their general health and "tone."

**Varieties which you will want to grow—see Snapdragon, page 249.**

## AQUILEGIA.

### (COLUMBINE)

In recent years the hardy Columbine has been considerably improved with brighter colours and longer spurs. So much so that many who have not bothered to grow it for some years can hardly reconcile these fine blooms with the ones they first grew.

They like a fairly rich loam in a warm, sunny spot, but will also do quite well in the semi-shade.

They are Autumn-sown, usually from about January to April in most districts. Seed is sown in nursery beds or seed boxes, as described in Chapter 5. They are planted out when about 3 inches high, spacing them 15 inches apart. Give ample water in dry weather and liquid manure towards flowering time. Although a perennial, it is better to make fresh sowings each season, especially in warm climates.

**Varieties for the Home Garden—see page 238.**

## ARCTOTIS.

The silvery foliage and daisy-like flowers on long stems make this a worthwhile Summer annual.

Plants grow 2 to 3 feet high. Sow the seed during the Spring and Summer months in seed boxes or beds, covering them with about ¼ inch of soil.

Transplant the seedlings when a few inches high into moderately rich garden loam and spacing 12 inches apart. These plants thrive in a hot, sunny situation.

**Varieties—a selection for your choice—see page 238.**

## ASPARAGUS FERN.

An easily grown perennial plant greatly valued for its ornamental foliage which is not only used for indoor decoration but also in floral make-up work.

**Requirements:** The two varieties are entirely different; Sprengerii being a trailing plant and Plumosa upright growing, requiring some support, such as wire netting or trellis. For Sprengerii, suitable tubs or large pots are necessary with a diameter of from 8 to 12 inches. Drainage should be provided by holes in the bottom of the container which are covered with broken crockery. Fill with a mixture of leaf mould, well rotted manure and soil. Almost any soil will suit Plumosa, provided it is moderately rich; water generously during the Summer months.

**When to Sow:** Seeds of both varieties are sown during the Spring, although in mild districts Autumn sowings are possible.

**How to Sow:** Seeds can be sown direct where the plants are to remain or in seed beds for transplanting later. Cover with soil equal to about twice the thickness of the seeds and keep moist.

**Cultivation:** Small plants of Sprengerii should not be put straight into the large cask but into smaller containers with a diameter of about 3 inches and then gradually removed to larger ones as they grow. When grown on a verandah, the tub or cask should be on a high stand to allow for the drooping of the trailers, or if grown in baskets, these should be hung in a suitable place. Advantage should be taken of showery weather and plants occasionally stood out in the open in a shady place. Old plants which tend to become straggly may be cut back hard and generally need repotting with new soil. From time to time they can be given a little liquid manure and an occasional sprinkling of bone dust, say about a dessertspoonful to each pot or tub. Plumosa requires very little treatment apart from watering in dry weather and occasional liquid manure if plants appear to be slow growing.

**Varieties that are good for your garden—see page 253.**

## ASTER.

These wonderfully decorative annuals are being grown in great numbers every year. Gardeners have found that while early sowings are not always successful, they have much better results later in the season. Asters resent cold weather and at this time germination of the seed may be erratic.

**Requirements:** Asters grow particularly well in sandy loam but this

*A "close-up" of the popular Crego Aster.*

must not be over-manured. Although they do not always grow to the same perfection in heavy soils, they do quite well when such soils have been manured for a previous crop with horse manure. It has also been found that an application of old soot (4 ounces to the square yard) considerably improves heavy soils for Asters. Whatever soil is available, it should be thoroughly dug and well broken down before the plants are put out.

**When to Sow:** The first sowings can be commenced in the Spring and for this purpose the Giant Crego type is recommended. In most districts there is little advantage gained from very early sowings, as the Aster will not bloom earlier than its natural season, which is approximately mid-Summer. Nevertheless, it will bloom much later and after the Spring a succession of sowings can be made and as the season advances the choice of varieties should be varied accordingly. The Crego type is more suited for the earlier sowings but American Beauty is capable of producing first-class blooms in the cooler Autumn months and is used for later sowings. In many districts experiencing very hot Summers the later sowings often produce the best flowers. Where frosts are not usually seen until May these sowings can be delayed until January or February.

**How to Sow:** The method of sowing is as described in the chapter on raising seedlings. The seeds require a covering of about ¼ inch of prepared compost.

**Cultivation:** When the plants are of suitable size to enable them to be handled easily they can be transplanted out into good loamy soil, spacing them 10 inches apart in the rows with 12 inches between each row. They like a sunny position. In heavy soils the young seedlings may have difficulty in establishing their tender root system, but they can be assisted in this by incorporating some of the seed bed compost or sand in the hole where the roots are planted.

During the very hot weather a mulching over the surface of the bed will keep the surface roots cool and moist; this is an essential condition for success with Asters. With ordinary attention, the plants should be blooming about 4 to 5 months from sowing but later sown Asters will bloom a little quicker than this. One important point to remember is that the Aster is very susceptible to frost and late sowings must be discontinued in time for the blooms to be obtained before the frosty conditions commence.

**Varieties—see page 238 for our recommendations.**

## AUBRETIA.

A hardy perennial plant widely valued for rock gardens where the dainty trailers with tiny light blue flowers spill over the rocks to make an attractive display.

**Requirements:** Any moderately rich garden loam, with a preference to light sandy soil. Plants thrive mainly in cooler districts.

**When to Sow:** During Spring for the very cold districts and Autumn where Winters are fairly mild.

**How to Sow:** Seeds should be covered with about ⅛ inch sifted loam which is pressed down firmly and keep moist. Either seed beds or boxes can be used and under favourable conditions direct sowings are possible.

**Cultivation:** Seedlings are usually spaced about 9 inches apart but this can be varied to suit the rockery design. Once established they are hardy plants, requiring only sufficient water to keep them growing. Seldom is feeding necessary apart from perhaps a little bone dust or weak liquid manure just before flowering time. Keep weed-free by very shallow cultivation, taking care not to disturb the roots.

**Varieties—our choice for Home Gardens—see page 239.**

## BALSAM.

These hardy and colourful flowers are splendid in semi-shaded positions as well as sunny spots. Besides being used for bed or massed display, they can be grown in window boxes or pots.

**Requirements:** Balsam like a sunny position which, however, should be fairly moist. The soil should be well dug and, at the same time, a liberal dressing of some well-rotted manure mixed with it.

**When to Sow:** The first sowings are usually made in the early Spring, preferably when the ground has warmed after the cold Winter months. Earlier sowings than this should be made under glass or in a suitable warm spot.

**How to Sow:** If it is desired to make sowings direct into the open ground these must be delayed until the weather is really warm. If the soil is in good condition and is kept moist the difficulties of transplanting are eliminated. See Chapter 5.

**Cultivation:** The seedlings should not, of course, be planted out until danger of frost is over. The spacing should be about 12 inches between the rows, with 10 inches between each plant. During the warm Summer months a mulching of grass clippings or similar material will help to keep the surface roots cool and moist. From the time of sowing, the plants will produce blooms within about three months, eventually growing to a height of 18 inches.

**Varieties our customers grow—see page 239.**

## BEGONIA.

### Bedding or Fibrous Rooted Type.

Few other flowers grow so well in heavily shaded places as do these Begonias. They overcome the problem of a plant to grow in southerly and westerly aspects, and are remarkably hardy.

**Requirements:** Whilst these plants thrive in the shade, they do quite well in sunshine and need only a moderately rich loam. If grown in warm, sunny positions, they need water during dry weather, but otherwise are very hardy. Poor soils can be improved with the addition of rotted manure, say, 2 inches spread over and dug into the soil.

**When to Sow:** Spring and early Summer are the best times in most districts, although in very warm climates with mild Winters, Autumn sowings are possible.

**How to Sow:** The seed is almost as fine as flour and should barely be covered with soil. Mark out rows in the seed box by marking the soil with lines 1½ inches apart with the point of a nail, or lay the edge of a ruler on the surface and press down gently. Sprinkle the seed along the rows sparsely and press it in. Cover with a fine dusting of loam or dry rotted manure, and over this lay a sheet of newspaper. Water the seeds by sprinkling the paper and not direct on to the surface of the soil. Remove the paper as soon as there are any signs of germination which may start in 10 days or less.

*Here is a typical Balsam plant.*

**Cultivation:** When seedlings are large enough to handle, about 3 inches high, transplant into the already prepared soil, spacing them 8 inches apart. Water regularly until they are established. If plants appear to grow slowly, give liquid manure at intervals of about 10 days, especially towards flowering time.

**A hardy variety for Australian gardens—see page 239.**

## TUBEROUS BEGONIA.

One of our most beautiful pot plants. It can either be raised from seed or grown from bulbs which are planted during the Winter and Spring months.

**Requirements:** The needs of these plants are similar to Cyclamen, except that in partially shaded places they can be grown outdoors. Prepare the compost as described for Cyclamen on page 101 and give similar treatment.

**When to Sow:** Seeds are sown during the Winter and early Spring months.

**How to Sow:** As described for Cyclamen. See page 101.

**Cultivation:** The final potting or bedding soil for these plants can be a little richer than for Cyclamen, but only old rotted cow manure should be used and this should be sifted through ½ inch mesh wire. However, an excellent mixture is 4 parts loam, 2 parts leaf mould, 3 parts well rotted cow manure, 1 part coarse sand, 2 parts fine charcoal.

Ensure that the soil never becomes dust dry, and unlike Cyclamen, there should be no overhead watering of young plants or seeds. Partly immerse the pots so that the water percolates to the surface of the soil slowly and gently.

**Varieties which you will want to grow—see page 239.**

## BELLIS PERENNIS.

Although a hardy perennial, it is better to make fresh sowings each Autumn. These double, or English daisies make a splendid edging plant carrying quite large, fully double blooms on stems 6 inches high.

**Requirements:** The best results are obtained in a sunny position, but they grow quite well in the semi-shade. Soil need not be over-rich, but if it has not been manured in the past 12 months, some old rotted manure should be dug in prior to planting.

**When to Sow:** In most districts seed is sown in the Autumn, but in very cold climates Spring sowings are possible.

**How to Sow:** Seeds are sown in seed beds or boxes as described in Chapter 5. Cover them with soil equal to twice the thickness of the seed and finally with a sheet of newspaper. Keep moist until there are signs of germination, when the paper should be removed immediately.

**Cultivation:** Transplant seedlings 4-6 inches apart and 8 inches between rows. Give ample water during dry weather and keep down the weed growth by shallow cultivation. This is important, as plants are very Dwarf and can easily be swamped by heavy weed growth. When the young buds first appear, they can be stimulated by regular applications of liquid manure. To prolong the flowering period, regularly cut off all faded flowers.

**The next step is choosing a good variety—see page 239.**

## BIRD OF PARADISE.

**(See POINCIANA GILLESII)**

## "BIG GYP."

**(See SAPONARIA VACCARIA)**

## BLUE LACE FLOWER.

**(See DIDISCUS)**

## BORONIA.

Nearly every gardener at some time or other aims to grow some bushes of the well-known sweet-scented Brown Boronia. It is perhaps the most sweetly fragrant of all our bush plants, and because of this is tremendously popular.

Boronia favours fairly light loam but will grow in a variety of soils. If the ground is very heavy, the addition of some bush sand will put it in better condition for these plants. They thrive in a fairly moist, sunny position.

Seed is sown during Spring and covered with only the lightest amount of compost or leaf mould which is firmed well over the seed. Germination may be very slow, taking up to 8 weeks, and seed should not be allowed to dry out during this time. Seeds can either be sown in small pots or direct where the plants are to flower. In the latter case, the soil must be very carefully prepared. Seedlings can also be pricked out into pots when very small.

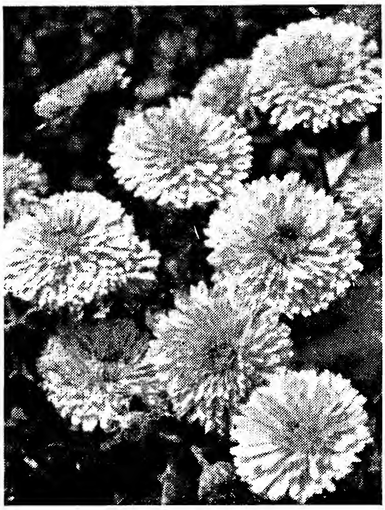
Choose a cool, favourable day for transplanting and water thoroughly afterwards. Once established, they can be given regular applications of liquid manure, but about half the usual strength (see page 26). Well established plants resist frost, but young specimens may need some protection the first Winter. After each flowering, prune back for a further flush of bloom.

**What's best for the Home Garden—see page 239.**

## BRACHYCOME.

**(SWAN RIVER DAISY)**

A native plant from Western Australia, bearing single blue flowers in



*Sow Calendulas about mid-Summer for Winter blooms. This is the much admired Chrysantha type.*

various shades and with contrasting centres. **Iberidifolia** is the botanical name for these plants which grow 9 inches high, and display a continuous show of blooms throughout the Summer.

These plants thrive in hot, dry situations, and resent heavily manured ground; however, heavy soils can have the addition of sand or leaf mould, or if available, compost.

Seed is sown during the Spring and Summer months. Being very fine, it requires only the lightest covering of soil, which should be pressed down firmly over them with a flat piece of board. Germination may be a little slow, and soil must be kept moist during the whole period.

Transplant seedlings when about 2 inches high, taking care to keep as much soil around the roots as possible. Space them 6-8 inches apart, with about 10 inches between the rows. Shallow cultivation only is necessary to avoid damage to the roots and, apart from this, they need very little other attention.

**The best Home Garden variety — see page 239.**

## BROWALLIA.

Blue flowers in Spring are all too scarce and this plant will make a welcome addition to the Spring annuals. They are useful for both outdoor and indoor decoration.

**Requirements:** They thrive in a variety of soils, from sandy to heavy loams, providing they are moderately rich. Can be used either for potting or border display.

**When to Sow:** During the Autumn months, but in cool climates in Spring.

**How to Sow:** Make a seed bed of fine soil, firming this down well and covering to a depth of about ¼ inch. Press down firmly with a piece of flat board and keep moist. Seeds can also be raised in boxes or pots.

**Cultivation:** Transplant seedlings about 9 inches apart and keep moist until well established. Apart from shallow cultivation, keeping weed-free, they require little other attention. Water during dry periods.

**The Home Garden variety— see page 239.**

## CALCEOLARIA.

The growing of these plants will test the skill of most gardeners, for they are rather particular in their requirements. There is, however, a great reward in seeing a batch of them in full flower.

**Requirements:** In mild climates they can be grown in a bush house but in districts colder than Sydney require a glass-house and some limited warmth during the flowering period—Spring.

**When to Sow:** During mid-Summer or early Autumn months.

**How to Sow:** In shallow, well-drained seed boxes filled with a compost of equal parts dry rotted manure, loam and sand. This should be finely sifted and carefully levelled. Sow the seed on the surface, barely covering it with a sprinkling of fine sand. Water with a very fine spray, such as a household atomizer, or by standing the box in about an inch of water until the soil is thoroughly moist.

**Cultivation:** Very young seedlings are first transplanted into small "thumb" pots and, as they grow, moved into 5-inch pots, with a final planting in the 7 or 8-inch size. These plants resent excessive heat at any time and require only moderate warmth at the flowering period. When finally established in the 7 or 8-inch pots and plants are growing nicely, give weak liquid manure every seven days.

**A choice Home Garden variety—see page 239.**

## CALENDULA.

A Winter-flowering plant that is known to many as the English Pot Marigold. The plants are hardy and easily grown, and in temperate climates (similar to Sydney) come into bloom during the Winter months, providing sowings are made early enough.

**Requirements:** Although Calendula succeed in a variety of soils, they are seen at their best in fairly rich, well drained ground. They like an open, sunny situation and ample water during dry weather.

**When to Sow:** In cool climates the seed can be sown in the Summer, Autumn and Spring, but, in climates warmer than Sydney, Autumn and Winter sowings only are preferable. Very early sowings are sometimes made in January, but the plants are then forced to flower in the warm weather and are more susceptible to disease.

**How to Sow:** They can either be sown in drills direct into the open ground or in seed boxes and afterwards transplanted. Whichever method is used the rows for the flowering plants should be 12 inches apart with 10 inches between the plants.

**Cultivation:** These plants are ready for transplanting when large enough to handle conveniently, but it is better that they be a little on the large side rather than be too small. Take as much soil as possible with the roots, and water each plant after it is put out (see notes on transplanting, page 32). Once established, which should be within 2 or 3 weeks of planting, they can have a light dressing of No. 12 fertiliser, allowing 1 teaspoonful to each plant. Distribute this in a circle about 4 inches in diameter. Another similar dressing can be given when they are showing signs of buds. Whilst liquid manure will increase quantity and size of the blooms if applied sparingly, too much of it will have the opposite effect and will only succeed in making a lot of foliage. These plants need very little other attention apart from keeping down weed growth by shallow cultivation, and if they are in a sunny, well-drained spot, should remain healthy.

Where the plants show signs of disease in the form of rust or leaf spot, a spraying of Colloidal Sulphur will help to check it. At the finish of the flowering season all affected plants should be destroyed by burning.

**Varieties—popular because they have proved best—see page 239.**

## CALIFORNIA BLUEBELL.

**(See PHACELIA)**

## CALIFORNIAN POPPY.

**(See ESCHSCHOLTZIA)**

## CALLIOPSIS.

### (COREOPSIS)

There are both annual and perennial varieties in this remarkably bright flower. It is particularly welcomed in hot, dry places, and withstands very difficult conditions.

**Requirements:** These hardy plants thrive in almost any soil and situation, but very heavily shaded positions should be avoided. Ground which has been previously manured for a preceding crop is ideal for them. It should be dug over a week or two before planting, and given a dressing of lime, 8 ounces to the square yard. At planting time it can be lightly forked again, and a light application of fertiliser, such as Superphosphate, given at the rate of 1 ounce to the square yard.

**When to Sow:** The Annual varieties are sown during Spring and early Summer, whilst the Perennial is best sown during the Autumn and early Winter.

**How to Sow:** Seed can either be sown in seed boxes and the seedlings afterwards transplanted, or it can be sown direct where the plants are to flower. Spare corners of the garden that are usually neglected can be dug over and some seed scattered over the ground. If kept moist it will germinate quite freely. Cover with soil equal to twice the thickness of the seed.

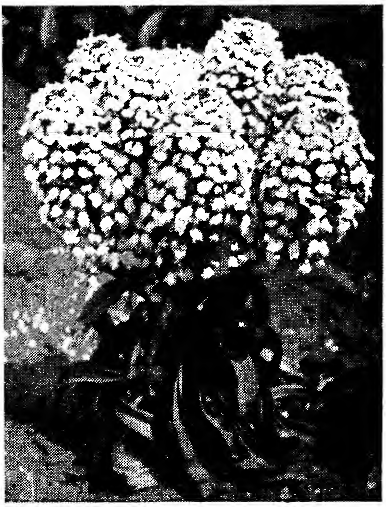
**Cultivation:** Transplant seedlings or thin them out to 9 inches apart, with 12 inches between the rows. In extreme drought weather, they can be given an occasional soaking, but apart from keeping down weed growth with shallow cultivation, little else is necessary.

**Varieties for the Home Garden—see page 240.**

## CANDYTUFT.

There are two distinct types of this flower, but perhaps the most widely grown is the Umbellata, which carries its flowers at the top of the stem, not unlike the Pin-Cushion (Scabiosa). The other type is Coronaria, or Hyacinth Flowered, which is pure white and produces a mass of florets, something after the style of the Hyacinth.

**Requirements:** This plant grows in most soils which need not be over-rich, but must be well drained. It requires a sunny situation, preferably sheltered from strong winds. It should not be crowded among other plants, because in such conditions, stems are liable to be spindly, and flowers poor.



*An illustration of the true habit of the Hyacinth Flowered Candytuft.*

**When to Sow:** In temperate climates, sowings are commenced in Autumn (March), and continued until the Winter months. In cool climates, Spring sowings are possible.

**How to Sow:** The usual method is to first sow the seed in seed beds, but they can also be sown in their permanent positions, and afterwards thinned out. Cover the seed with about ¼ inch fine soil, or leaf mould, and keep moist.

**Cultivation:** Seedlings are transplanted or thinned out to 9-12 inches apart, with about 12 inches between the rows; however, the Hyacinth Flowered type can be planted rather closer than this. Candytuft is a most easily cultivated plant, requiring only shallow cultivation to keep down weed growth and perhaps an occasional application of liquid manure. Before planting, a liberal quantity of rotted manure dug into the soil will put it in ideal condition for them. Equal parts of Bone Dust and Superphosphate at the rate of 1 tablespoonful to the square yard will tend to produce healthier plants.

**Varieties that are good for your garden—see page 240.**

## CANNA.

Increasing numbers of Cannas are being grown every year. Gardeners like their stately appearance and brilliantly coloured blooms.

**Requirements:** A fairly moist position and any average garden loam. The addition of well rotted manures is an advantage but not always essential.

**When to Sow:** Preferably during the Spring or early Summer months.

**How to Sow:** Make a seed bed of fairly fine soil and space the seeds about ½ inch apart. To hasten germination, nick the skin of the seed carefully with a sharp knife. Cover with about ¼ inch of soil. It is essential that the seed bed soil does not dry out and therefore regular watering is necessary.

**Cultivation:** When seedlings are 2-3 inches high they can be transplanted into the positions where they are to be grown, or into nursery beds where they are spaced about 6 inches apart. Sometimes they are put into pots or tins with suitable drainage and allowed to develop before they are finally planted in their permanent positions. Spacing of plants can vary according to requirements; both overcrowding and large gaps should be avoided. Usual spacing is from 2-2½ feet apart. Once established they need very little care apart from ample moisture during dry weather and liquid manure at flowering time if the soil is not sufficiently rich.

**What variety should you grow? see page 240.**

## CANTERBURY BELLS.

Since the introduction of the Annual varieties of Canterbury Bells, home gardeners in warm climates have been able to enjoy these old-time flowers, which was almost impossible when the Biennial type only was available.

**Requirements:** These plants favour a partially shaded situation, slightly moist, but well drained. They will not succeed in heavy shade and should receive at least 5-6 hours of morning sun. Dig in liberal quantities of rotted manure, preparing the soil some weeks before planting. If soil has not been limed during the preceding 12 months, give a dressing equal to 8 ounces to the square yard, forking this in some three weeks before the manure. A light application of No. 12 ready-mixed plant food will help to fulfil the requirements of the plants if manure is not available.

**When to Sow:** Seeds of the annual varieties sown during the early Autumn will flower the following Spring. The biennial varieties, however, produce their flowers the second Spring. They are sown either during the Autumn or Winter months.

**How to Sow:** Carefully prepare seed boxes or seed beds as described in Chapter 5, making shallow drills about 1½ inches apart. Sow seed along the bottom of these, covering with about ⅛ inch of soil, and over this again spread a sheet of paper. Keep moist until germination is complete. If plants are too crowded, it may be necessary to prick them out into a similarly prepared bed or box until they are ready for transplanting.

**Cultivation:** Transplant seedlings when about 3 inches high, into beds now prepared for them. All varieties are spaced 12 inches apart, with 15 inches between the rows. Give applications of liquid manure after the plants have become well established and ample water during dry weather. After the first flowering, the Biennial variety can be cut back for a further flush of blooms the following year.

**The Home Gardener's favourite varieties—see page 240.**

## CAPE FORGET-ME-NOT.

### (See ANCHUSA)

## CAPSICUM.

### (ORNAMENTAL CHILI)

A remarkably attractive berry plant being greatly sought after where something unusual is required either for potting or for border. It can be grown as an annual but is really a perennial.

**Requirements:** Any average garden loam is suitable and need only be moderately rich. They prefer a fairly sunny situation but can be grown in partial shade.

**When to Sow:** During the Spring and early Summer months.

**How to Sow:** In seed beds or boxes with fine soil. Cover with loam equal to about twice the thickness of the seed, firming this down with a piece of flat board; keep moist.

**Cultivation:** Transplant seedlings when 4 to 5 inches high, spacing them about 20 inches apart. During dry weather water regularly to ensure that soil is kept moist and keep weed-free by shallow cultivation. Liquid manure, when the plants are showing their small white flowers, will ensure a greater crop of berries. Although these berries are not poisonous they are extremely "hot" and young children should not have access to them.

**For the Home Garden—see page 240.**

## CARNATIONS.

The culture of Carnations can commence either by sowing the seed or obtaining plants which are propagated from cuttings or layers. It should be understood that named (catalogued) varieties of Carnations cannot be grown from seed. If, for instance, the well-known Salamander

Carnation is required it will be necessary to obtain plants or cuttings. For a fuller explanation of this, see page 80.

There are two types of Carnation, either of which can be grown from seed; the Malmaison and the Perpetual Flowering. The Malmaison or bedding Carnation is the most widely known and will be easily recognised by its deeply serrated or fringed petals and a strong clove scent. The Perpetual Flowering type is one from which most of the new named varieties are obtained.

Once the seeds are raised and the young seedlings are ready for planting out the cultivation of all Carnations is the same and it is therefore proposed to depart slightly from the usual method adopted in this chapter by first giving the cultivation from seed and then general cultivation.

## Cultivation from Seed.

**When to Sow:** Seed can be sown at almost any time of the year but Spring and Autumn are regarded as the best seasons.

**How to Sow:** Germination may be slow and slightly erratic and therefore seed beds should not be neglected if there is no appearance of shoots during the first few weeks or more.

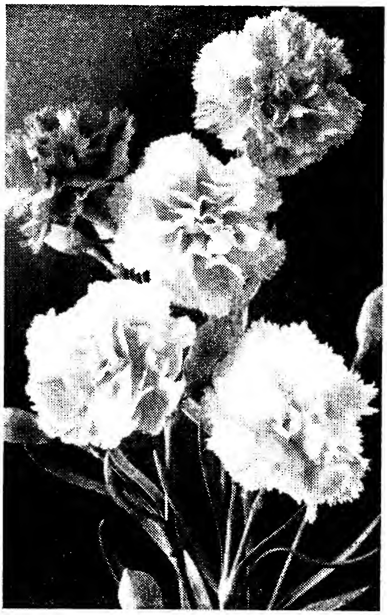
The best method is to make a seed bed and prepare the soil as described in Chapter 5.

If the soil is kept moist there should be signs of germination within two or three weeks.

## General Cultivation of Carnations.

**Requirements:**
Carnations will grow in practically any type of soil from heavy loams to sand. Perhaps the main exception is hard, yellow clay, but there are some varieties that will thrive even in this.

These plants favour an open position exposed to the full sunlight and resent being crowded by other plants or shrubs. It is better if they are protected from the westerly and southerly winds but not absolutely essential.



*The Giant Bedding (Malmaison) type of Carnation is easily grown from seed.*

First dig over the soil to the full depth of the spade or fork and then add a good handful of air-slaked lime to each square yard. Work this in well and allow it to stand 3-4 weeks before manuring. If beds can be prepared some time beforehand, so much the better and they should then be given another good turning-over two weeks before planting.

For light soils use well-rotted cow manure, and for heavy soils, horse manure. If manures are not available, incorporate any rotted organic material such as compost or leaf mould. Spread the manure uniformly over the bed about 2 inches thick and over this sprinkle equal portions of bone dust (not blood and bone) and superphosphate at the rate of one good handful to the square yard. At this stage, give the bed its final digging as mentioned earlier and allow it to settle for two weeks before planting.

Sulphate of Potash is also a great aid in producing healthy plants and can be added to the soil at the rate of one ounce (approximately a tablespoonful) to the square yard.

Just prior to the flowering period plants can be given a dressing of blood and bone which is scattered among them at the rate of ½ lb. per square yard. This is hoed or forked in lightly and subsequent waterings will take it down to the roots.

Bad drainage is probably the greatest enemy of Carnations and they quickly become affected by such diseases as Collar Rot and Rust. All beds should be raised well above the surface—about 4 inches in light soil and 6-7 inches in heavy soils.

### Care of Plants.

Short stocky plants are the best and long straggly ones should be avoided. Space the plants about 15 inches apart each way if the beds are long and narrow, and about 2 feet apart in round beds. Never crowd plants — this also induces diseases. When transplanting keep the plants well up out of the ground so that no more than about ½ inch of soil covers the top of the root cluster.

Keep the soil surface well stirred, but not too deeply, and thus keep the plants clean of weed growth. This is much more easily done when the weeds are small, because they can then be left on the surface of the ground to die after cultivating.

The greatest number of best blooms come from sturdy plants which are obtained by regular nipping back of the early bloom stems. When the plants attain a height of about 6 inches, break them back and this will induce side shoots which in turn are pinched back when they grow to a length of about 6 inches. When the plant has developed 10-12 shoots (according to the habit of growth of the variety), these may be allowed to send up flower stems. When cutting flowers for the vases or for show, always break them off near the base of the plant.

It is essential that each main stem should bear only one bloom if first-class flowers are desired. This entails the removal of all side buds that are produced at the leaf axils, leaving only the main bud at the extreme top. In some varieties, these buds will have a tendency to burst at the calyx but this can be checked by fitting small rubber bands (⅜ inch) around them.

After a period of 12 months flowering, plants will begin to look straggly. If, however, they still appear to be healthy they can then be cut back hard to within 3 inches of the centre stem. Given normal attention such plants should produce a further flush of bloom equal to those obtained from previous flowerings. However, in some light soils, plants that have bloomed abundantly may not be worth this treatment and would best be renewed.

### Pests and Diseases.

Carnations are not greatly subject to either pests or diseases providing the cultivation hints given in these notes are followed fairly closely, particularly the suggestions on raised beds. A few simple measures will help to keep them healthy.

#### PESTS.

Aphis and Thrip may prove troublesome—see page 207.

#### DISEASES.

**Rust:** This occasionally appears after heavy late Autumn or Winter rains. It is easily recognised by a brown substance which blotches the leaves. Plants should be dusted every 3 or 4 weeks with air-slaked lime. Where this fails to check it, it may be necessary to use some of the finely divided sulphur dusts (not Flowers of Sulphur) or sulphur sprays such as Colloidal Sulphur. Rust will usually be prevented if drainage is satisfactory and beds are well raised above the surface. It can also be caused by using fresh manure or over-watering.

Some diseases, such as crown or stem rot, are caused by virus in the soil and there is no known cure for them. Plants may assume a silvery appearance and soon wither. They should be pulled up and burnt.

**Home Garden Varieties—
see page 240.**

## CELOSIA.

**A hardy Summer bedding plant, revelling in hot, sunny positions.**

*The feathery flowers and brilliant colour of the Thompsoni Celosia make unusual decoration.*

These plants grow in almost any garden loam and favour a sunny position. The ground can be made moderately rich by the addition of some rotted manure and a dressing (1 oz. to the square yard) of No. 12 Plant Food. Seed is sown during Spring and early Summer and requires no special treatment apart from following the general instructions in Chapter 5.

The cultivation of the plants is most simple and providing the soil is moderately rich in the first place, they need nothing more than an occasional watering during dry weather and some applications of liquid manure towards flowering time. Keep the surface weed free by shallow cultivation, avoiding damage to the surface roots.

**Varieties—a selection for your choice —see page 240.**

## CENTAUREA.

### (SWEET SULTAN AND CORNFLOWER)

There are two distinct types of this plant: Imperialis and Cyanus. The latter is the well-known Cornflower, and both types grow with reasonable success in temperate climates similar to Sydney. They are, however, seen at their best in cool climates.

These plants grow well in fairly rich soil in a cool situation. Choose a spot receiving at least five hours of morning sun. Insufficient drainage will cause mildew, to which they are rather subject.

The seed of all varieties is sown from early Autumn until Winter in prepared seed beds or boxes. Space plants 18 inches apart with 20 inches between the rows. Given normal conditions, these plants require very little attention apart from regular weeding and some liquid manure towards flowering time.

**Selected varieties for the Home Gardener—see pages 240 and 251.**

## CHEIRANTHUS.

### (SIBERIAN WALLFLOWER)

A charming rock garden or low border plant and very striking when grown in large masses. It is actually a perennial but is usually treated as an annual.

**Requirements:** A sunny position and a moderately rich, well drained soil.

**When to Sow:** During the late Summer and Autumn months.

**How to Sow:** Make seed beds or boxes of fine soil, covering the seed to a depth of ⅛ inch. Press down firmly with a piece of flat board and keep moist until germination is complete.

**Cultivation:** Transplant seedlings when about 2 to 3 inches high, spacing them 6 inches apart. They are very hardy and will respond to good treatment, such as ample water during dry times and liquid manure (once the plants are well established) every few weeks until flowering. If desired they can be cut back for a further flush of flowers the following season.

**Start with a suitable Home Garden variety—see page 240.**

## CHINESE FORGET-ME-NOT.

### (See CYNOGLOSSUM)

## CHERRY PIE.

### (See HELIOTROPE)

## CHRISTMAS BUSH.

### (CERATOPETALUM GUMMIFERUM)

A very showy shrub well known as the New South Wales Christmas Bush. At Christmas time plants are covered with bright red seed bracts. These follow the starry white flowers that appear in October and November.

**Requirements:** A warm, sunny situation sheltered from the worst winds, and ample water during dry weather.

**When to Sow:** During the early Autumn months.

**How to Sow:** Make seed boxes or beds of a light sandy loam or of the following mixture: Equal parts pure sand, loam and well-rotted manure or compost. Space the seeds ½ inch or so apart in narrow drills, covering them with about ¼ inch of soil. Keep moist but not wet.

**Cultivation:** Seedlings can be transplanted to some small pots when about 2 inches high or allowed to grow, to say, 4 inches and transplanted to permanent positions. They should not be planted closer than 6 feet apart and, contrary to general opinion, seem to thrive in fairly rich ground. Only well-rotted manure should be used. They are fairly hardy but need large quantities of water in October and November if a good crop is desired. Thrip sometimes prove troublesome by destroying the white flowers, thus spoiling the display of bright red seed bracts. Spray regularly with D.D.T. throughout the flowering period.

**Variety for the Home Garden—see page 240.**

## CHRYSANTHEMUM.

It is first necessary to distinguish between the two main types in this flower: the annual and the perennial. The annuals are easily grown from seed and are valuable for cutting as well as border display. The perennials are also easily grown from seed but named varieties must be propagated by cuttings or root division. As the cultivation and sowing times of these two totally different types are not the same, it is necessary to deal with each separately.

### TRICOLOUR

### Annual Type.

### (PAINTED DAISY)

Plants 2½ feet high bear multi-coloured Marguerite-like flowers in many brilliant shades. They are Spring and early Summer-flowering plants, of which fresh sowings are made each season.

**Requirements:** Most types of soil are suitable for these plants and they do well in moderately rich ground. For sandy soils, add cow or sheep manure, and in heavy soils stable manure. Garden compost, plus a little No. 12 Fertiliser at the rate of ½ ounce to the square yard will put most soils in ideal condition. Give them a warm, sunny spot, sheltered from the worst winds.

**When to Sow:** During Autumn and Winter in temperate climates and in cold climates with cool Summers, during Spring.

**How to Sow:** Use seed boxes or seed beds as described in Chapter 5. Cover the seed with about ¼ inch soil and keep moist.

*The annual Chrysanthemum is well named "Painted Daisy." See also next page.*

**Cultivation:** Seedlings are ready for transplanting when 3 to 4 inches high and should be spaced 15 inches apart, with 20 inches between the rows. These plants bloom quickly after transplanting, usually in about 3 to 3½ months. Keep them free of weeds by shallow surface cultivation, avoiding damage to the shallow surface roots. Liquid manure when the plants commence to bud will increase the size and quantity of the flowers.

Yates' Artists' Glory Iceland Poppy — for delightful colours and faultless blooms.

Lilac Queen Alyssum can make a lovely display on pathways, edgings and borders.

Yates' Champion Fancy Pansy is justly famed for its rich colours and rare markings.

Yates' Selected Large Flowering Mignonette —the choice of both the florist and home gardener.

### Perennial Type.

Whether Chrysanthemums are raised from seed or propagated from cuttings, their cultivation is identical, once seedlings are ready for planting. The Indicum strain of Chrysanthemum which is the parent of all the modern exhibition Chrysanthemums, is the one usually grown from seed. It ensures a wide variety of decorative single, semi-double and double flowers and raising plants by this method is both interesting and economical. However, the gardener who wishes to have named varieties of Chrysanthemums must obtain plants which are propagated from cuttings or by root division. These are available during October and November, which are the best times to plant.

**Requirements:** Quite frequently Chrysanthemums are allowed to "take their chance" and it is surprising what good results are obtained in this way. Nevertheless, even though flowers are not required for Exhibition, they are well worth some careful preparation and cultivation. The reward will be healthier plants, larger flowers and many more of them. They grow well in a variety of soils, although very sandy loams should be "stiffened" with rotted cow manure or ample compost. For heavy loams, use stable manure or compost. It is preferable to dig the soil two or three times over a period of some weeks before planting, thus bringing it into first-class condition. These plants will not thrive in poorly drained soil where water lies after heavy rain (see page 9). Give them a warm, sunny situation and particularly avoid heavy shade or wind-exposed positions.

**When to Sow:** Seeds are sown during the early Spring. In most districts sowing can be commenced in August and continued until October.

**How to Sow:** Seed is quite easily raised; prepare a seed bed as described in Chapter 5.

**Propagation:** Plants of named varieties of Chrysanthemums are available during October and November. These are not grown from seed but propagated from cuttings. If it is desired to attempt this method of increasing one's stock, the best time to take cuttings is during July and August. Select the strong shoots which appear about that time on plants that have been cut down the previous year. These shoots are cut just below the eye with a sharp knife. Remove the eyes (or buds) from the portion of the stem that is to be put into the earth. Prepare a light soil mixture, say, equal parts of sand, loam and rotted manure. This can be either filled into 3-inch pots or into seed boxes. Both should have drainage as described on page 9. The soil should be well firmed by pressing it thoroughly with a flat piece of batten so that the surface is perfectly level and firm. Mark out the surface with crossing lines 2 inches

*Showing the plant habit of the Painted Daisy.*

apart and plant one cutting at each intersection. The cutting is either pushed straight into the soil or a hole is made for it with a pencil or skewer. Water thoroughly after planting. To encourage a quicker "strike" keep the box or pots in a cool frame, as illustrated on page 34. Under favourable conditions they will root in from three to four weeks and can then be planted out into the garden.

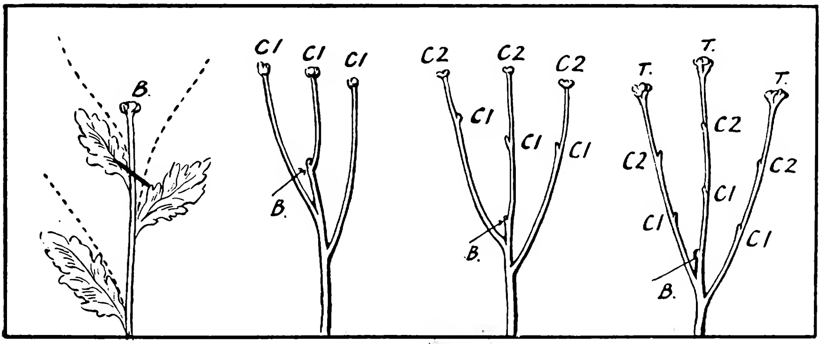
Extra plants can, of course, be obtained by dividing old clumps which are dug up and pieces broken or cut off, each carrying a strong shoot.

**Cultivation:** Plants are ready for transplanting when about 3 inches high, and for Exhibition or special purposes are spaced 3 feet apart in rows, with 4 feet between them. Where, however, flowers are grown for indoor decoration or garden display, these measurements can be safely reduced to 2 feet and 3 feet respectively. Firm the soil well around the roots after transplanting and give each plant about a quart of water. Maintain regular watering until they are thoroughly established. Keep the plants growing by regular shallow surface cultivation and by frequent applications of weak liquid manure. This, however, should be discontinued when the buds show colour.

**Exhibition Blooms:** There is a great difference between growing Chrysanthemums for garden display and growing for shows where competition is very keen. Shallow cultivation is now almost universally practised. The beds are first laid with a foundation of corrugated iron cement or perhaps sheets of fibro cement. Sometimes very hard level ground is just as effective. The sides are then built up with 5-6 inch boards and the space filled with soil. A widely used mixture is equal barrow loads of good clean loam and well rotted stable manure, to which is added 7 lbs. Bone Dust and 3 shovelsful each of charcoal, lime and soot. After thoroughly mixing these ingredients and filling the area, the soil is tramped down firmly. Plants are usually spaced 18 inches apart, with 3 feet between the rows.

Blooms ready for exhibition can often be ruined by heavy rain, and some sort of protection, such as frame work, over which hessian or calico can be draped for protection if necessary.

The illustration indicates the selection of buds necessary for exhibition blooms. The first bud to be nipped off is the non-flowering growth that appears early in the season. This is followed by the first crown buds (C1) from which excellent blooms will be obtained. However, it is often the practice to take these off so that blooms are obtained later in the season and they are followed by the second crown buds (C2) which will probably give even better flowers. However, there is still another stage and the blooms required for late



*First figure shows the taking of the non-flowering bud* (b). *Dotted lines denote where future shoots carrying flowering buds will appear. The next three figures show the relation between the first crown* (c.1), *second crown* (c.2) *and terminal* (t) *buds.*

exhibition are often obtained from the terminal buds (T1) which appear after the second crown buds. For exhibition, no more than three buds are allowed on each plant. Leaf buds will also form around flower buds and it is necessary to detect these and nip them off so that they do not steal the sap necessary for flower buds. Experience quickly teaches which are the leaf buds to be removed. All pruning should be completed about the end of March.

**Varieties from seed—see page 241.**

**Named plants—List ready August.**

**CHRYSANTHEMUM LEUCANTHEMUM. (See SHASTA DAISY, page 132)**

## CINERARIA.

Plants that succeed in the semi-shade are all too few for most gardeners but Cineraria delights in such a position.

**Requirements:** When grown in the open they require shade in climates similar to and warmer than Sydney. However, in really warm climates, a cool bush house is necessary if they are to flower successfully.

**When to Sow:** The seed is sown in the Autumn and the plants bloom during the late Winter and early Spring. In cool districts, however, the sowings are made even earlier than this but usually not sooner than the 1st of December.

**How to Sow:** In seed boxes or beds as described in Chapter 5. Cover seed with ¼ inch of fine soil.

**Cultivation:** To obtain strong seedlings it is a good plan to move them as soon as they are large enough to handle and prick off into 3-inch pots or into boxes, in which case they would be spaced 4 inches apart. Occasionally they are grown right to the flowering stage in pots and it is then necessary to re-pot into 5, 7 and finally 8-inch size for flowering.

During the growing season they should have regular applications of liquid manure and the loam itself can contain a liberal dressing of Superphosphate. From time to time they can be stimulated with liquid applications of Sulphate of Ammonia, using 1 dessertspoonful to a gallon of water. There are a number of pests which are very partial to the Cineraria foliage and, as a precaution, weekly sprayings of weak Nicotine Sulphate will keep most in check. Watch also for caterpillars, which can usually be picked off by hand and destroyed.

**Varieties culled from the World's best—see page 241.**

## CLARKIA.

A surprising number of home gardeners grow Clarkias every year. They like the unusual flowers and their unique effect for indoor decorations.

**Requirements:** The soil should not be over-rich but a good medium loam which has been manured for a previous crop will grow them to perfection. Over-manured soils are inclined to produce too much foliage at the expense of the flowers.

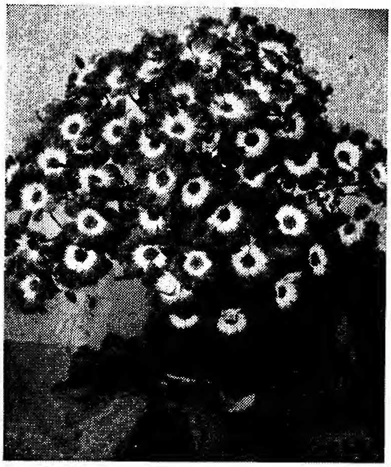
**When to Sow:** Sowings made in the late Autumn and in mild climates, also during the Winter months, will provide blooms from early to late Spring.

**How to Sow:** The seed should be sown direct into the position where the plants are to flower, or in seed boxes. The former method is preferred, as the plants do not transplant easily. See Chapter 5.

**Cultivation:** The rows should be 18 inches apart with about 9 inches between the plants in the rows. In exposed positions a little staking is sometimes necessary, as well-grown plants will reach a height of 2½ feet. For preference, the position where they are to grow should be well sheltered from winds.

The plants will benefit from occasional applications of liquid manure when the buds begin to show, but this should not be overdone. Regular watering, however, will keep them moving and ensure a really fine flush of bloom.

**Make sure of a good variety—page 241.**



*The Californian Super Giants Cineraria are ideal for pot culture.*

## CLIANTHUS DAMPIERI—

**(See STURT'S DESERT PEA).**

## COCKSCOMB.

Colourful plants similar to Celosia for which cultivation is identical.

**Varieties for the Home Garden— see page 241.**

## COLEUS.

Well known and much admired for its brilliantly coloured leaves. A handsome pot plant for the bush house or verandah.

**Requirements:** A fairly rich, well prepared loam and a semi-shaded, sheltered situation.

**When to Sow:** During the late Spring and early Summer months—plants are very susceptible to frost.

**How to Sow:** Prepare soil for seed bed or box with a mixture of equal parts sand, loam and rotted manure, all of which should be finely sifted. Ensure good drainage if boxes or pots are used. Firm the surface well before sowing by pressing lightly with a piece of flat board. Seed should be sown as sparsely as possible and to help in this mix with it a small quantity of clean sand. Sprinkle a light covering of soil or dry rotted manure (sifted) and press down firmly once again. Water sufficiently to keep the soil moist, but avoid over-watering, which will cause damping off of the young seedlings.

**Cultivation:** Transplant seedlings when about 2 inches high and if used for border plantings, space about 12 inches apart. Only the best plants should be selected for potting; colourings can be determined when the plants are still very young. Potting soil should be the same as advised for the seed boxes. Transplant carefully so that the young, tender stalks do not collapse through squeezing with the fingers. Once established, give ample water so that the soil is always moist without actually being waterlogged. Weekly, or even bi-weekly, applications of manure will help to intensify the colours and ensure larger leaves.

**The Home Garden variety— see page 241.**

## COLUMBINE.

**(See AQUILEGIA).**

## CORNFLOWER.

**(See CENTAUREA)**

## CORAL BELLS.

**(See HEUCHERA).**

## COREOPSIS.

**(See CALLIOPSIS).**

## COSMOS.

Probably the easiest grown of all plants, yet flowers are most decorative in slender vases and there are some fine colours.

**Requirements:** They will grow in almost any good garden soil, which need not be made over-rich. The bed or border in which they are grown should be in a well-drained position and, for preference, sheltered from the worst winds.

**When to Sow:** The first sowings are commenced in the Spring, but later sowings than this can be made, especially some of the quicker flowering types, such as Early Orange Flare. Sowings should cease, however, in time to allow the plants to be in full bloom before the early Winter frosts, Of late years, quite a number of gardeners have found how useful it is to make these later sowings in, say, January, for the late Autumn blooms.

**How to Sow:** The seed is usually sown in the seed bed and afterwards the seedlings are transplanted. However, it is quite a large seed and sowings can be made direct into the beds where the plants are to grow. In this case it is best to sow them in groups of three spaced 18 to 20 inches apart. This would also be the measurement for transplanted seedlings.

**Cultivation:** The care of the plants consists in keeping the ground well stirred but in very hot Summer weather a good thick mulch will keep the roots cool and moist. Staking the plants is not usually necessary if they are grown fairly closely together, when they assist in supporting each other.

When cutting flowers for the house only those blooms which are freshly opened should be used. This can be detected by the clean appearance of the pollen on the stamens, which are bright yellow. By scalding the stems in boiling water for 15-18 seconds the flowers last much longer in water.

**Varieties tried and tested under Australian conditions—see page 241.**

## CUPHEA.

An unusually striking rock garden or edging plant.

**Requirements:** A warm, sunny situation and soil that is not inclined to be too rich.

**When to Sow:** During Spring and early Summer months.

**How to Sow:** Prepare seed beds or seed boxes with fine soil, avoiding any fresh manure or ground that is too rich. Sow seeds as sparsely as possible, covering them with about ¼ inch sifted loam. Firm down well, making the surface level and keep moist.

**Cultivation:** Transplant seedlings when large enough to handle, spacing them about 6 inches apart. Water sufficiently to keep the ground moist until well established but after this avoid heavy watering. They do not require heavy feeding and apart from keeping the ground weed-free little other cultivation is necessary.

**Varieties are important for successful gardening—see page 241.**

## CYCLAMEN.

A bush-house or glass-house plant, requiring more care than most, but many enthusiasts consider the gorgeous blooms are well worth the trouble involved. They can either be grown from seed, bulbs or plants purchased during the late Winter and early Spring months. Cyclamen bulbs are usually planted from about December until May.

**Requirements:** Good compost of equal parts loam, leaf mould and sand should be prepared. This will serve for both raising the seedlings and growing the plants. In warm climates these plants can be grown successfully in a bush-house, but in colder areas it is necessary to have a glass-house. The usual method is to grow them in pots and when in bloom they can be used for indoor decoration.

**When to Sow:** Seed is sown during the early Spring, Winter and Autumn and flower next year.

**How to Sow:** Fill an ordinary flower pot half way with broken crockery or small pieces of charcoal and the remainder with the prepared compost. Water this thoroughly and let the surplus moisture drain away. Distribute the seeds sparsely over the surface, covering them with a light top-dressing of fine leaf mould, equal to about twice the thickness of the seed. They will probably germinate irregularly, some taking up to two months, but the more forward plants should be removed to other pots as described later.

**Cultivation:** As the seeds germinate, give an abundance of light and free circulation of air, avoiding direct sunshine. The young seedlings are pricked out into pans or other pots, using the same compost, already described. As they grow, pot them singly into, say, 3-inch pots, regularly changing them into larger sizes up to 7 inches as they mature.

Always allow ample drainage, water in abundance and give them the advantage of night dews. If this is not possible, syringe the plants frequently.

## CYCLAMEN BULBS.

After flowering, Cyclamen form a bulb or corm which can be stored for future seasons. These corms can also be purchased and it is much easier to grow plants from these than from seed. They are planted in the compost already advised, just under the surface.

Red spiders, thrips and aphis may attack the plants. Remedies advised in Chapter 15 should be adopted.

**For a choice variety see page 242.**

## CYNOGLOSSUM.

### (CHINESE FORGET-ME-NOT).

An easily grown annual bearing long spikes of bright blue florets resembling, but larger than, the Forget-Me-Not.

**Requirements:** Moderately rich garden loam and a sunny position.

**When to Sow:** During the Autumn months in warm climates and in the Spring where Winters are severe.

**How to Sow:** Prepare seed bed with fine surface soil or sow seeds direct where plants are to bloom. Before sowing, press down firmly with a piece of flat board and then make a shallow drill about ½ inch deep. Sow the seed along this, covering with about ¼ inch sifted loam or dry rotted manure. Keep moist until germination is complete.

**Cultivation:** Transplant seedlings when about 2 inches high, spacing them roughly about 12 inches apart. If there is no rain, water once a week and give liquid manure towards flowering time. If no liquid manure is available give each plant a teaspoonful of Sulphate of Ammonia, watering this in.

**Varieties—see page 242 for our recommendation.**

## DAHLIA.

Dahlias are among the most easily grown plants and where failures occur this is often due to over-attention rather than neglect. This does not mean that these plants will thrive on bad treatment, but it is quite a common fault to give them too much water, manure or shade. Given ordinary attention they will respond readily and display an abundance of their much admired blooms for several months.

Dahlias can be grown either from seed or from tubers which are obtainable during the late Spring months. There is always a lot of interest in growing them from seed and, providing they are selected from good stock, the possibility of obtaining something special is always there but, even apart from this, you can always be certain of a multitude of colours and variations. Plants will bloom within 3½-4 months after planting-out the seedlings and continue their flowering for many weeks. During this time, they are forming small tubers, the best of which can be kept for planting next season.

Named varieties of Dahlias cannot be grown true to type from seed but tubers are available during the late Spring months. List in August.

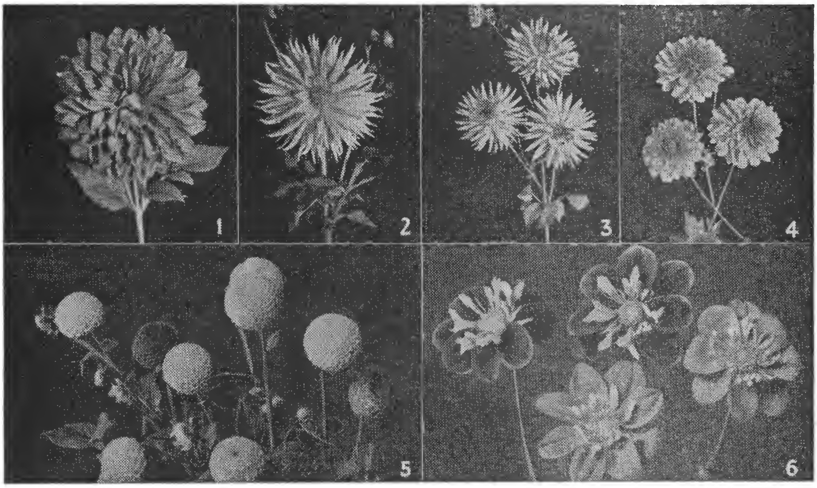
**Situation:** These plants favour a sunny position and one where they are sheltered on the southern and western sides. It is essential that they have a well-drained soil from which water quickly runs away after heavy rain.

**Soil:** Any ordinary garden loam should grow Dahlias successfully, but they do best in soil which has plenty of organic matter mixed with it, such as rotted compost made from grass clippings, weeds, etc., or leaf mould. Well rotted manure could also be used but too much of it will tend to force the growth of the foliage and reduce the number of flowers. Stable manure is preferable for heavy loams, and cow manure for sandy loams.

**Soil Preparation:** If the beds in which it is intended to plant Dahlias are in constant cultivation it will be necessary only to dig this over before planting and incorporate whatever organic material is available. Do not dig in fresh green weeds or lawn clippings unless it is done at least 3 months before planting. Where ground has been idle for some years it is advisable to dig it roughly during the Winter months and then redig it again before planting.

Lime will help to put it in better condition and this can be used at the rate of 8 ounces per square yard. Do not use lime in conjunction with manures, but allow a three weeks' interval between applications of these materials. Very deep digging is not essential and usually the full depth of the spade or fork is sufficient providing that this does not bring the sub-soil to the surface.

To assist drainage and thus better aeration of the soil, it is preferable if garden beds are built up well above the normal surface and the edges held by bricks, one inch thick wooden boards, concrete or any available materials.



*Typical Dahlias from which our seed stocks are collected:—*
1. *Decorative (large); 2. Hybrid Cactus; 3. Charm Cactus;*
4. *Charm Decorative; 5. Pompone; 6. Collarette.*

*Dahlias such as in Nos. 1 and 2 represent our Double Mixture; Nos. 3 and 4, Charm Mixture; No. 5, Pompone Mixture; No. 6, Collarettes, are included in our Single Mixture with other single types. See also Dahlia, page 242.*

Avoid using artificial fertilisers except perhaps as a later application when the plants are growing as explained in the paragraph "Watering and Manuring."

**When to Sow and Plant:** Seeds are sown during the Spring and early Summer. The earlier sowings give blooms round about January and the later sowings during the cooler Autumn weather when blooms are not so easily damaged or bleached by the hot sun. Tubers are planted during October, November and December, but it is always best to order early.

**How to Sow and Plant:** Seeds are sown in seed boxes or beds, covering them with ½ inch fine soil or a mixture of soil and dry rotted manure. The instructions given in Chapter 5 should enable the seeds to be raised easily. Transplant seedlings when they are about 2 inches high and from then on give them the same treatment as for plants growing from tubers.

For planting tubers mark out the places where the Dahlias are to go; 3-4 feet apart is sufficient for the Decorative types and 2½-3 feet for the Collarette, Charm or Hybrid Cactus varieties. Pompone Dahlias can be spaced 24 inches apart.

Make the hole sufficiently deep so that the tuber will be covered with about 2 inches of soil and drive in a stake, no less than 6 feet in length, before the tuber is planted. Place the tuber a few inches from the stake and draw the soil over it, avoiding the very large lumps. Give sufficient water to allow the soil to settle thoroughly. After this continue to use water sparingly without actually letting the soil dry out.

**Cultivation:** Continue to be sparing with the water until the plants are 3 or 4 inches high and then gradually increase the amount, particularly if the weather is dry. Too much water before the shoots have appeared above the ground often causes the loss of tubers through rotting but once established they can be given a thorough soaking once, or even twice, a week unless there is rain.

**Pruning:** There is always a great deal of controversy on the question of pruning Dahlia plants and if there is any doubt on the part of the amateur or beginner he should leave his plants alone. Pruning encourages diseases for, of course, the Dahlia has a hollow stem which, when cut, renders the plants susceptible to disease. However, as a general rule it can be said that the large Decorative Dahlias should not be allowed to grow more than four laterals.

These larger Dahlias will also need some bud pruning if size is to be the aim. Usually the buds are carried on the stem in groups of three and only the terminal or centre bud is retained; the others being cut off with a very sharp knife close to the stem. Moreover, other bud-carrying stems will also appear at the leaf axils (i.e., where the leaf joins the stem) and where exhibition flowers are desired these are usually pruned off. Such pruning, however, is not necessary or advisable for Charm or Pompone Dahlias.

**Watering and Manuring:** As the plants continue to grow the water supply should be increased so as to ensure the soil is never actually dry. When they are 12 inches high a surface dressing of artificial fertiliser such as Superphosphate can be given. It is better, however, to apply a complete plant food such as No. 5; give each plant about a heaped dessertspoonful of this, and distribute it in a circle around the base. Rake it in lightly and then water thoroughly.

When the buds appear, liquid manure, made the colour of weak tea, can be given every 10 days, but it is not absolutely necessary unless the plants appear to need some stimulation. It is almost certainly not necessary where plants have been heavily mulched with rotted manures, for with the watering these should provide all the necessary stimulation.

**Care of Plants and Blooms:** Remove all spent flowers as quickly as possible, for these will only draw nutriment from the oncoming buds. If blooms are required for the house, pick these in the cool of the evening and dip the ends of the stems in scalding water while it is still boiling. Allow them to remain in the hot water for about 15 seconds, but to ensure that the rising steam does not scald the blooms, tilt them sideways or wrap them in two double sheets of newspaper.

**Care of Tubers:** Tubers should not be lifted until the plants have completely died down, which is usually during the early Winter. Lifting is generally done with a garden fork, which is plunged into the soil sufficiently far away from the tuber to avoid damaging it. After lifting they can be stored in a shaded place as under trees or under suitable shelter. The soil that adheres to them underneath will be sufficient to keep them in good condition through the Winter months, but if preferred they can be stood in sand or dry soil so that they are a little less than half covered. At this stage it is a good plan to attend to the name tags so that there will be no confusion the following season.

As the warm Spring weather approaches tubers will again commence to send out small "eyes" or shoots from around the neck of the old stem. They can then be divided by carefully cutting off each separate tuber with a sharp knife, but at the same time ensuring that each piece carries a shoot or an eye.

## SPECIAL NOTES ON THE SMALLER TYPES OF DAHLIAS.

These, of course, include the Pompone, Charm and Collarette types. When growing these for exhibition or even garden display, it is desirable to have blooms of the right size which for Pompone Dahlias is not more than 1¾ inches in diameter and, for Charm, not more than 4 inches. To attain these desired sizes, manures should be dispensed with altogether and organic compost dug into the soil. Less water is required and plants should be allowed to grow unpruned.

When flowers are required for exhibition, withhold water altogether for about seven days before they are due to be picked.

## GREEN PLANTS OR TUBERS.

Many nurserymen increase their stock of Dahlias from cuttings which are rooted in sand and these are sold as "Green Plants," but we do not consider these to be satisfactory when Dahlias are required for transport.

## PESTS AND DISEASES.

Chief pests are Thrip and Red Spider, for the control of which see pages 207 and 208. Snails and slugs are sometimes troublesome and suitable baits, such as Defender, should be laid.

Fortunately, Dahlias are not greatly subject to diseases, although spotted wilt, stunt, powdery mildew and leaf spot are sometimes seen. Home gardeners or commercial growers who need identification of diseases are advised to send specimens to their nearest Department of Agriculture.

**Choose from the selected varieties on page 242, and Dahlia List in August.**

## DELPHINIUM.

Among the blue flowers there are few that can equal these, both for their rich colour and handsome blooms.

**Requirements:** In warm climates it is recommended that Delphiniums be treated as annuals, but in cold districts where the Summers are cool they will last for several years.

The soil for Delphiniums should be very rich and it would not be too much to incorporate a 3 to 4-inch layer of some good rotted cow manure.

**When to Sow:** Sowings are made both in the Autumn and the Spring. The plants are very hardy and will stand almost any amount of frost, but in cold districts, Autumn-sown seedlings must be protected for Spring planting.

**How to Sow:** The seed might prove a little slow in germination and it is always essential to obtain a good reliable stock which is constantly tested. This applies to all our seeds and Delphinium in particular is given close attention.

The method of sowing is in seed boxes or seed beds, as described on page 29.

**Cultivation:** The young seedlings are ready to go out into the open as soon as they are large enough to handle conveniently. The Tall Hybrid types should be spaced 20 inches between the plants in rows 24 inches apart and the smaller Chinese types 12 and 15 inches respectively.

The after care of the plant consists of keeping the soil surface well stirred and giving frequent applications of liquid manure. They are heavy feeders and welcome any such material in large quantities. During the warm **Summer months** it may be necessary to mulch the surface soil to keep the roots cool.

**Varieties—start with those specially recommended on page 242.**

## DIANTHUS.

These very hardy plants are closely related to the Bedding Carnation. They grow in a variety of soils, are drought-resisting and yield an enormous quantity of fragrant, colourful blooms.

Should you wish to prolong the flowering season, carefully cut the plants back after the first flowering season is completed, and apply liquid manure freely.

Like the bedding Carnations, Dianthus can be sown at all times of the year, and its requirements are identical. See page 93.

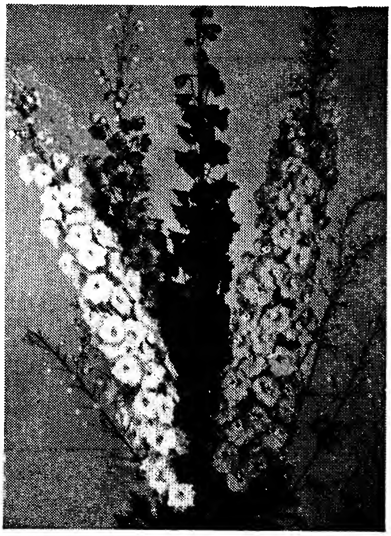
**For the Home Garden—see page 242.**

## DIDISCUS.

### (BLUE LACE FLOWER).

In recent years gardeners have shown tremendous interest in this plant. It flowers during the Autumn months and sends up long decorative stems, carrying Scabious-like blossoms in a shade of light blue.

**Requirements:** These plants favour a cool but not over-shaded situation, sheltered from strong winds.



*The newer Pacific Giants Delphinium is noted for its large florets and tremendous spikes.*

The soil should not be hastily prepared but dug some weeks before planting, incorporating a 2-inch layer of rotted manure or compost. Just prior to planting, dig it over once again, breaking it down as fine as possible.

**When to Sow:** In most districts seed is sown during the Spring but in mild climates with practically frost-free Winters, early Autumn sowings are preferred.

**How to Sow:** Seedlings do not transplant readily and seed is often sown direct into the borders where the plants are to flower. Make a shallow furrow about ½ inch deep, sowing the seed along the bottom of this and pressing it in with the edge of a batten. Cover with ¼ inch of soil and keep moist.

**Cultivation:** Thin out seedlings to 12 inches apart and with care surplus plants can be transplanted elsewhere if plenty of soil is taken with their roots. Avoid any disturbance to those seedlings that are to be left. During hot weather the roots should be protected by a generous mulching of leaf mould, grass clippings or rotted manure. Liquid manure can be given at intervals throughout their growth, particularly towards flowering time.

**Varieties—our choice for Home Gardens—see page 239.**

## DIGITALIS.

### (See FOXGLOVE).

## DIMORPHOTHECA.

Warmth-loving plants from South Africa that thrive under the most difficult conditions.

These plants thrive in a variety of soils, from sandy loam to heavy clay. The brilliant colours are seen at their best in hot, sunny situations.

Seed is sown during Spring and Summer, either in seed boxes or beds or direct where the plants are to flower. Seedlings are thinned out or transplanted 12 inches apart. Apart from shallow cultivation to keep down weed growth, they require very little attention.

**Choose from the selected varieties on page 242.**

## ESCHSCHOLTZIA.

### (CALIFORNIAN POPPY).

Another addition to the list of flowers that thrive in hot, sunny places, and like most of these plants, produce vividly coloured flowers.

Seed is sown in the Spring and cultivation is identical with Dimorphotheca.

**What variety you should grow—see page 240.**

## EUPHORBIA.

### (SNOW ON THE MOUNTAIN).

This plant is valued for its attractive foliage.

**Requirements:** A warm, sunny situation, sheltered from the worst winds, and a moderately rich soil.

**When to Sow:** During Spring months after frosts have finished.

**How to Sow:** As plants are not easy to transplant, seed is best sown where they are to remain. Make the surface soil as fine as possible and firm it down well. Cover seed with about ⅛ inch fine soil or dry rotted manure, again firming this thoroughly over the seed.

**Cultivation:** When seedlings are well established, thin out to 15 inches apart or if grown in seed beds, transplant at this distance. Ensure ample water during dry weather; liquid manure is beneficial without being essential.

**Variety for the Home Garden—see page 243.**

## EVERLASTING DAISY.

### (See ACROCLINIUM).

## FLANNEL FLOWER.

### (ACTINOTIS HELIANTHI).

This Australian native plant is probably too well-known to require description. It does not adapt itself readily to home garden conditions but it is a great favourite for indoor decorations and flowers last a long time after cutting.

These plants resent heavily manured soils and a condition similar to bush soil should be aimed for. They favour the semi-shaded, moist situations and as seedlings do not transplant easily, seed should be sown where the plants are to grow. Spring is the best time for sowing and seed may take several weeks to germinate. Plants should be spaced about 12 inches apart and in thinning them out or weeding there should be no disturbance of the root system.

**Variety for the Home Garden see page 243.**

## FLAX.

### (See LINUM).

## FORGET-ME-NOT.

### (MYOSOTIS ALPESTRIS).

The true English Forget-Me-Not is still a very popular flower; however, it may not be generally known that it is also available in pink and white.

These plants thrive in fairly moist, semi-shaded places, where they receive a few hours of morning sun. A moderately rich soil only is necessary to grow them to perfection. Seed is sown during the late Summer and Autumn, in seed boxes or nursery beds. It is covered with about ⅛ inch fine soil and kept moist. Seedlings should be transplanted about 9 inches apart and, if the sun is hot, should be slightly shaded. Seed may be slow in germinating, taking from 3 to 4 weeks. To ensure that the soil does not dry out during this time, cover it with a sheet of newspaper, taking care that this is removed immediately there are signs of the seeds germinating.

**Varieties which are hardy in Australian gardens—see page 243.**

## FOXGLOVE.

### (DIGITALIS).

A hardy perennial plant, 3 to 4 feet high, sending up long spikes of bell-shaped flowers.

Foxglove is seen at its best in cool climates, although it is grown with some success in districts similar to Sydney. Under such conditions these plants require a fairly cool, semi-shaded situation. Prepare the soil some weeks beforehand, digging in a generous quantity of rotted manure or compost. If the ground has not been limed during the preceding twelve months, it can be given a liberal dressing, up to 1 lb. per square yard. Seed is sown during the Autumn for flowers the following Spring, and as it is very fine should have only the lightest covering of sifted soil. This should be firmed down with a flat piece of board. Cover with a sheet of newspaper and keep moist. Once the plants are established and particularly towards flowering time, they can have regular applications of liquid manure and ample water during the dry weather. Seedlings are transplanted when about 3 inches high, spacing them about 2 feet apart.

**Make sure of a good variety—see page 243.**

## FREESIA.

Freesias are comparatively easily raised from seed and plants bloom in the first season. During this time they form small bulbs for future planting.

Seed is sown during Summer and early Autumn and is usually slow in germinating. During this time it should be kept moist and left undisturbed. Seed beds or seed boxes are prepared as described in Chapter 5, and seed should be covered with about ¼ inch of sifted loam, leaf mould or dry manure. Seedlings are transplanted when about 2 inches high, and spaced 3 to 4 inches apart. Another method, and probably the most convenient for most home gardeners, is to sow them direct where the plants are to flower, and, usually, unless seedlings are very crowded, there is no necessity to thin out. If this method is used, soil must be broken down into fine particles, especially on the surface, and kept moist. Where possible, the surface is

*Gaillardias are always a good standby.*

covered with tarred paper or similar material to prevent excessive drying out. Some commercial growers mix the seed with about 10 times as much sand and keep it moist for a few days, by which time there is usually signs of germination. They then sow the seed after the first tiny roots have just broken the skin.

The majority of Freesias are, of course, grown from bulbs available during the Autumn months and the cultivation of established seedlings is identical with the culture of bulb propagated plants. See page 151.

**Varieties from Seed—page 243—and Bulbs, 172.**

## GAILLARDIA.

There are both annual and perennial Gaillardias and each has its special merits. The annuals bloom quickly from seed, whereas the perennials have a long flowering period and can be cut back several times.

**Requirements:** Gaillardias are remarkably hardy and will survive the most severe drought but will, however, amply repay any attention, such as the addition of a light dressing of rotted manure to the soil and an occasional watering in dry times.

**When to Sow:** Sowings can be made almost at any time, except in the very coldest months. Autumn and Spring sowings are particularly successful.

**How to Sow:** Seed beds or boxes are used for the sowing, and as soon as the young plants are large enough to handle they can be put out into the permanent positions, spacing them 15 inches apart each way.

**Cultivation:** Where very dwarf growth is required, some gardeners go to the trouble of pegging down some of the leaf stems and thereby obtain an unusual massed effect of these golden and red flowers growing almost to the ground, covering it with a carpet of colour.

**Varieties for better gardens—see page 243.**

## GERBERA.

Providing one or two essentials are observed, Gerberas are not difficult to grow. Few other flowers can compare with them for daintiness and vivid colouring. Lack of foliage on the stems for indoor decoration can be offset by the introduction of light fern in the vase or by mixing them with white Gypsophila.

**Requirements:** Gerbera is a warmth-loving plant and should be given the sunniest position in the garden. The soil in which they are grown must be well-drained. Well-grown Gerberas will be seen mostly in well raised beds, sometimes as much as a foot above the ground. The soil should contain a liberal dressing of rotted manure and, previous to this, have a good application of lime. Very heavy soils can be lightened with the addition of sand, to which the plants are rather partial. The plants will stand a fair amount of frost but when planted in a sheltered frost-free position, will often produce a number of flowers during the colder months. They do not favour open situations which are likely to be swept by winds.

**When to Sow:** Seed sowings can commence in Spring but if the ground is still wet and cold there may be some difficulty with germination at that time of the year. It will probably be necessary to use a glass-covered frame or a sheet of glass over the seed boxes. Sowings can continue until about mid-Summer (January in Sydney). These warmth-loving plants will usually germinate very freely during the hot weather.

**How to Sow:** The seed should be sown in the manner described in Chapter 5, but the compost should contain rather more sand—say, one part of sand to one part of other materials. It should be made just moist and pressed down fairly firmly. Sow the seed into shallow drills and cover with a ¼ inch of fine compost.

The box should be kept in a very warm spot or a "cool" frame but if this is not possible it should be well covered with a piece of glass, the underside of which is whitewashed. The soil should be kept moist but never saturated.

**Cultivation:** The plants are usually ready for putting out in about 8 weeks and it is better to handle them when very small by pricking them out into a seed bed or box, spacing them 2 inches apart. They can be hardened off and grown to a good size before planting in the open ground with a spacing of 18 to 20 inches between them. It is important that the crown of the Gerbera is not covered in planting or at any stage of its growth. Allow it to stand well up above the surface of the soil; once the soil gets over the top of the crown, rot is likely to set in. Gerberas can be left in the same position for two or three years, but the old plants, once they become too crowded, can be divided and replanted.

**See page 243. Gerbera Plants on page 192.**

## GEUM.

A colourful perennial, growing to perfection in districts similar to and cooler than Sydney.

**Requirements:** A moderately rich soil and a position receiving the morning sun, but shaded during the afternoon.

**When to Sow:** Sowing season extends from mid-Summer until late Winter, but Autumn sowings are preferable. In cold climates, sow in the Spring.

**How to Sow:** Cover the seed with fine loam or dry rotted manure equal to its own thickness. Firm this down thoroughly with a flat piece of wood and keep moist. Seed beds will be found best and seedlings transplant fairly readily.

**Cultivation:** Allow seedlings to grow to a fair size before transplanting, then space them 12 inches apart. Keep them growing with ample water during dry weather and once well established, with liquid manure every ten days. Although perennials, they are usually grown as annuals in warm climates. Plants should be cut back hard if retained for further flowering.

**Varieties you will want to grow—see page 243.**

*There is no transplanting with Gypsophila. Just scatter the seed and keep down the weeds.*

## GILIA.

**(See IPOMOPSIS).**

## GLADIOLI.

Although usually grown from bulbs, there is absorbing interest in raising new varieties from seed. It is never possible to say just what colours the flowers will be but there is always a chance of obtaining something really unusual.

**Requirements:** Fairly rich garden loam and a sunny situation sheltered from strong wind.

**When to Sow:** During the Spring months and also in the Autumn. Avoid sowings in the hot weather.

**How to Sow:** Seeds can be raised in suitably prepared seed beds or in seed boxes filled with fine soil. A good mixture is equal parts of loam, sand and rotted manure. Cover seed with this same mixture to a depth equal to about its own thickness. Firm down well and keep moist.

**Cultivation:** Seedlings are not transplanted and can be left in the seed bed or boxes; there will be a grass-like growth but no flowers. This growth should be allowed to die down and very tiny corms will then be formed under the ground. These can be left in the soil until they again send up new growth and in the meantime the soil surface should be kept weed-free. Very small flowers might be obtained from this second growth and, after this has died down, slightly larger corms will be formed. These should then be dug up, rested for a few weeks and replanted. Cultivation is then the same as for Gladioli bulbs, for which see page 151.

**From Seed, page 243, and from Bulbs, 172.**

## GLOBE AMARANTH.

A rather attractive "everlasting" flower which can be cut and dried for indoor decoration. If hung head downwards for drying they will keep their colour and not droop.

**Requirements:** A moderately rich garden loam and a sunny situation.

**When to Sow:** From Spring to mid-Summer.

**How to Sow:** Seeds can either be sown in seed beds and the seedlings afterwards transplanted or direct where the plants are to grow. Sometimes they are scattered in odd corners and are usually successful if the ground is kept moist.

**Cultivation:** Plants are most easily grown and if transplanted should be spaced about 12 inches apart. Give ample water during dry times, with an occasional liquid manuring towards the flowering stage.

**What varieties should you grow? see page 243.**

## GLOXINIA.

In most climates a glass house is necessary for these plants, although in mild districts they can be grown in a bush house. Great care is necessary in raising them, especially in the early stages.

Seed may be sown at any time but usually it is done during the early Spring, although where a glass house is available, Autumn sowings are possible in most districts. Large flower pots with good drainage are filled with equal parts of loam, sand, rotted manure and leaf mould. Being very fine, they are sown just on the surface and lightly pressed in. Watering is done with a very fine spray, such as an atomizer, or by standing the pot in water until the moisture reaches the surface. If a glasshouse or frame is not available, cover with a sheet of glass and keep the pot in a semi-shaded place. Seed germinates readily and the tiny seedlings must be pricked off into shallow boxes, from which they are transferred later into 4 or 5-inch pots. The essentials for the growing of this plant are warmth and ample moisture. After the first flowering, they will form small bulbs which can be retained for planting the following season. As the plants go to rest, gradually withhold water until quite dry and place the pots on their sides or remove the tubers and store them in coarse sand in a place where the temperature averages about 55 degrees. Bulbs for immediate planting can be purchased during the Spring months.

**For Seed see page 243, and Bulbs, 172.**

## GODETIA.

This hardy plant has been rather aptly named "Farewell-to-Spring." It comes into bloom right at the end of that season and it fills a gap between the flowering of the Spring and Summer flowering annuals. There are two types, the Tall Double Azalea Flowered variety and the Single Dwarf.

**Requirements:** These plants like a moderately rich loam to which can be added an application of bone dust and superphosphate, mixed in equal parts and applied at the rate of 2 ounces to the square yard. Soil of practically any texture suits them and whilst they are fairly drought-resisting, will respond to regular watering in dry weather.

**When to Sow:** Godetias can be sown from early Autumn to early Spring but it is not likely that the very early sowings will yield earlier blooms. Sometimes seeds sown in the late Winter or very early Spring give excellent results.

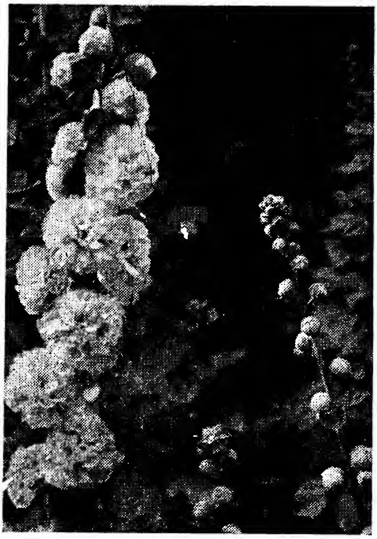
**How to Sow:** Seeds are sown in seed beds or boxes and germinate very freely. They should be covered with about ¼ inch of sifted loam and kept moist. They can be also sown direct where the plants are to grow and the seedlings afterwards thinned out.

**Cultivation:** When seedlings are 2 to 3 inches high, they can be transplanted to their permanent positions, spacing them 12 inches apart. Choose for them a warm, sunny position, sheltered, if possible, from strong winds. Godetias are a shallow rooting plant and care is necessary in weeding so that the root system is not unduly disturbed. Give liquid manure as plants commence to bud and maintain this regularly, if possible, until in full bloom. Flowers for indoor decoration should be cut when the first two or three florets are fully open on the stem.

**Varieties—popular because they have proved best—see page 243.**

## GYPSOPHILA.

By sowing seeds regularly throughout the year a constant supply of



*Double Hollyhock—one of the oldest of flowers and still a great favourite.*

these dainty blossoms is available for the home in all but the hottest months. No transplanting is necessary, as seeds can be sown direct where the plants are to grow.

**Requirements:** The Gypsophila favours a well-dug and generously limed loam enriched with a liberal dressing of rotted manure. It blooms quickly from seed and, in the warm weather, will produce its flowers 8 weeks after sowing.

**When to Sow:** Sowings can be made practically the whole year round, except in the very cold and very hot weather.

**How to Sow:** Small successional sowings will provide a continuity of these dainty flowers for the house. It is not usually worth-while sowing in seed beds; the seed will germinate freely in the open ground where the plants are to flower. It can be sown fairly thickly in drills spaced 9 to 12 inches apart and covered with ½ inch of soil.

**Cultivation:** There is seldom any need to thin out the plants, as they will produce really good blooms even when growing so closely together that they touch each other. Moreover, when grown closely, each plant forms a support for its neighbour.

**Perennial Type:** The perennial type is more suited to very cool climates, although it is sometimes grown in warm climates under bushhouse conditions.

**The Home Gardener's favourite variety—see page 244.**

## HELIANTHUS.

### (See SUNFLOWER).

## HELICHRYSUM.

### (STRAW FLOWER).

A popular everlasting flower which, because of its papery texture, is often called Straw Flower.

These plants thrive in a warm, sunny situation and any ordinary garden loam will suit them. While they withstand difficult conditions, they respond to watering during dry weather.

Seed is sown both during the Autumn and Spring months into prepared seed boxes or beds. Seedlings are transplanted 12 inches apart and, under normal conditions, plants attain a height of 2 feet. Flowers for indoor decoration should be picked when the buds are half open, and suspended heads downwards for drying. They will last for many months without water.

**The home garden variety— see page 250.**

## HELIOTROPE.

### (CHERRY PIE).

A hardy perennial which, although not new, is now being widely recognised as a tall, useful border plant.

**Requirements:** A fairly rich loam and a sunny situation sheltered from the worst winds. Soil that is moist but not constantly wet suits them admirably.

**When to Sow:** During the Autumn months in warm climates and Spring in cold districts.

**How to Sow:** In well prepared seed beds, covering seeds with about ¼ inch fine soil.

**Cultivation:** These plants thrive on ample water and manure. Soil should not be allowed to dry out. Once established give each plant about a dessertspoonful of Bone Dust, which should be raked and well watered in. Liquid manure when the plants are showing buds will give better colours and larger blooms. Mulch the soil during the Summer months with lawn clippings or manure. Cut down plants after flowering for a further flush of blooms.

**Start with a suitable Home Garden variety—See page 244.**

## HEUCHERA.

### (CORAL BELLS).

An extremely dainty and colourful perennial plant for rockery or border culture.

**Requirements:** Fairly rich soil in a sunny or partially shaded situation.

**When to Sow:** During the Autumn months and in cold climates in Spring.

**How to Sow:** In well prepared seed boxes filled with fine soil. Avoid sowing too deeply but cover the seed with up to ¼ inch loam or dry rotted manure.

**Cultivation:** When seedlings are about 2 inches high, transplant into the previously prepared bed, spacing them 15 inches apart. Give liquid manure when plants are showing signs of flower stems and maintain this every two weeks until flowering. If they are kept weed-free and well watered during dry times they will continue to bloom for a long period. When cutting flowers, take the stems right from the base of the plant.

## HOLLYHOCK.

The annual variety, Indian Spring, now available in this flower, enables Hollyhocks to be grown with much more success in climates similar to, and warmer than, Sydney.

**Requirements:** Hollyhocks will grow in almost any good garden soil, but the cultivation will be improved by the addition of a good dressing of rotted animal manure. The position where they are to be grown should be chosen with a view to keeping the plants sheltered from wind.

**When to Sow:** In cold climates experiencing hard frosts in Winter, sowings are made in the early Spring and the first flowers are usually produced by the next year. In mild climates with only light to heavy frosts, sowings are also made in the Autumn for flowers during the following Spring.

**How to Sow:** The seed is sown in seed boxes and covered with about ¼ inch soil. The young plants are usually ready for putting into their flowering position in 6-8 weeks. It is as well to space them about 15 inches apart.

**Cultivation:** Hollyhocks should not be crowded with other plants, but it does no harm to grow small bedding annuals near them, providing sufficient space is left around them for cultivation. When they are about 8-10 inches high, they can be given a dressing of No. 12 fertiliser, allowing a teaspoonful to each plant. Another application can be given when they first show signs of buds. Snails and slugs are very partial to these plants and can cause quite a lot of damage, especially when they are young. Maintain regular baiting with Defender or similar baits, until the plants are well established. They are also sometimes susceptible to mildew, especially in moist, humid weather. This can be checked by dusting Flowers of Sulphur over the plants or by spraying with Colloidal Sulphur. Occasional sprayings of D.D.T. will help to keep down other pests.

If plants are in a sheltered position, it may not be necessary to stake them, but where likely to be broken by wind should either be tied to a stake, trellis or wire netting.

**Selected varieties for the Home Gardener—see page 244.**

## HONESTY.

### (LUNARIA).

A hardy biennial plant grown mostly for its silver ornamental seed pods which are preceded by purple flowers.

**Requirements:** Any good garden soil is suitable but if suspected of being poor, a good layer of well rotted manure should be added and well mixed in.

**When to Sow:** During the Autumn months and in cold climates in the Spring.

**How to Sow:** In well prepared seed beds or seed boxes. Cover seed with about ⅛ inch fine soil or dry rotted manure, and keep moist.

**Cultivation:** Plants should be transplanted when large enough to handle, spacing them 18 inches apart. Give ample water during dry periods and liquid manure towards flowering time. To preserve the pods for indoor decoration cut the stems when they are ripe and allow them to dry. The outer portion of the pod is then peeled back, showing the inner white or silvery lining. They will last for long periods without water.

## HUNNEMANNIA.

### (MEXICAN POPPY).

Few other flowers have such a brilliant yellow colouring, and as a low border plant this is one of the brightest small flowering annuals.

**Requirements:** A moderately rich soil and a warm, sunny situation.

**When to Sow:** During the Spring and also Autumn months.

**How to Sow:** Seedlings do not transplant readily and seeds are best sown where the plants are to flower. Prepare the surface soil as finely as possible, firming this well down before sowing. Make a shallow drill about ½ inch deep and sow the seed sparsely along this. Cover with about ¼ inch fine soil or dry rotted manure, firming this down well with a piece of flat board, and keep moist.

**Cultivation:** When seedlings are established thin them out to 9 inches apart, watering thoroughly after this has been completed in case any plants have been disturbed. They will stand a certain amount of dry weather but plants resent complete drying out and should be watered if there is no rain.

**The best Home Garden variety— see page 246.**

## IMPATIENS.

Although this attractive annual is an old favourite with many gardeners, it deserves to become better known as a pot plant for the house or verandah. It can also be successfully grown in well shaded garden beds.

**Requirements:** A moist, well shaded position, sheltered from strong winds.

**When to Sow:** Seed can either be sown in the Autumn or Spring months.

**How to Sow:** Prepare soil for seed boxes or beds by sifting well and ensuring good drainage. Cover seed with about 1-16th inch sifted loam, firming this well down. Keep moist and, in hot, sunny weather, ensure that seedlings are well shaded in a bushhouse or with twigs through wire netting.

**Cultivation:** It is preferable to prick out seedlings when they attain their second leaf into small pots or tins. When they are 2-3 inches high they can be then planted into larger pots or the open ground. In borders, plants should be spaced 15 inches apart. Give ample moisture during dry weather and liquid manure towards flowering time.

**See page 244 for the most suitable variety.**

## IPOMOPSIS.

### (Or GILIA).

In habit this plant is not unlike Larkspur, but the blooms are of dazzling orange and scarlet shades and have a tubular base, opening into five-petal florets.

Garden soil which has grown other annuals satisfactorily should be ideal for these plants. Sown in the Autumn they will bloom the following Spring. Prepare seed boxes or beds as described in Chapter 5 and cover with

*For something uncommon and striking, try Ipomopsis (Gilia).*

about ¼ inch soil. Seedlings are ready for transplanting when about 2 inches high and the best effect obtained when they are planted in a fairly dense mass, spacing them 9-10 inches apart.

**See page 244 for our recommendation.**

## KOCHIA.

A plant greatly valued for its ornamental foliage.

Seed is sown during Spring and early Summer in seed boxes and the seedlings afterwards transplanted. Cover the seed with about ⅛ inch fine soil, firm it well down, and keep moist. Seedlings can be transplanted when 2-3 inches high and, to enable plants to fully display their symmetrical shape, should be spaced 2 feet apart. Choose a warm, sunny situation and prepare ground much in the same way as for other Spring planted annuals.

**What variety shall I grow?—see page 244.**

## LARKSPUR.
### (ANNUAL DELPHINIUM).

A colourful Winter and Spring flowering plant that is easily grown, and thrives in a variety of soils.

**Requirements:** These plants will grow to perfection in practically any well manured and well drained soil. They make excellent subjects for cutting, and also for massing with other flowers of similar height (2 to 2½ feet) as a background for smaller growing ornamentals.

*Even under field conditions this seed crop of Imperial Larkspur produced splendid heads. It should be even better under home garden conditions.*

The position for Larkspurs should be well sheltered from heavy winds, but it is seldom that they need heavy staking.

**When to Sow:** Autumn and Spring are the best times for sowing, but in climates similar to Sydney these sowings are continued through the Winter. Many commercial growers of cut flowers like to make very early sowings in, say, mid-Summer but, as the Larkspur favours a cold snap or at least cool conditions for successful germination, these early sowings are often unsuccessful. There have been many instances where the seed has remained dormant in the ground for two or three months until the cooler weather.

**How to Sow:** It is usual for the seeds to be sown where the plants are to flower. They can be grown quite close together, and will assist in supporting each other. About 6-8 inches is ample space between the plants for a good massed display. However, if grown in rows, these should be about 15 inches apart.

**Cultivation:** The seedlings are not impossible to transplant and, if it is necessary to thin out a number of these, they can be replanted in another portion of the garden and often prove successful. About ½ inch of soil is sufficient for covering the seed in an open ground sowing, but less than this for seed boxes or beds. Care must be taken to see that the soil does not dry out.

Once the plants are established they require very little attention and are quite hardy. An extra fine flush of bloom will be assured by weekly applications of liquid animal manure and regular watering in dry weather.

**Varieties that are best for the Home Garden—see page 244.**

## LATHYRUS.
### (PERENNIAL PEA).

This plant might almost be termed a semi-dwarf climber. It is particularly valuable where only limited height is desired and plants seldom **attain more than 4 feet.**

**Requirements:** These are similar to Sweet Peas, although perhaps not quite such rich soil is necessary.

**When to Sow:** In temperate climates during the Autumn months and Spring for cold climates.

**How to Sow:** Seed is best sown where plants are to flower, spacing them 2 feet apart. Cover with soil equal to about twice the thickness of the seed and water regularly to keep moist. Seeds can also be sown in small tins filled with fine soil and with ample drainage holes in the bottom.

**Cultivation:** If seeds have been sown in tins, they can be transplanted when 2-3 inches high but, when removing the tin, make sure the roots are not disturbed. Some support is necessary from the early stages and wire netting or trellis work should be provided. Small twigs can be pushed into the ground if the trellis is not low enough to take the young plants. To ensure that plants bloom their full period—3-4 months—keep blooms regularly cut and give liquid manure every 10 days from the time the buds show.

**Choose from the selected varieties on page 247.**

## LAVENDER SHOWER.

### (See THALICTRUM).

## LEPTOSYNE.

### (GIANT WINTER FLOWERING YELLOW MARGUERITE).

Such bright yellow flowers as these are not plentiful during the Winter months and in temperate climates these plants never fail to bloom during that season.

Although seed is very easily raised and germinates freely, seedlings resent transplanting. For this reason, seed is often sown where the plants are to grow, covering it with about ¼ inch fine soil. Another method is to fill tins or suitable containers, such as paper pots, with soil, and sowing 1 or 2 seeds in each. If both germinate, one seedling is removed. When plants are about 2 inches high, the container is cut away, or the soil and plant tipped out so that the whole of the root system can be transplanted without damage. Leptosyne grows well in moderately rich loam, requiring full sunshine and a well-drained position. Autumn sowings should produce blooms in mid or late Winter.

**The best Home Garden variety—see page 245.**

## LINARIA.

Increasing numbers of these plants are now being grown each year. Gardeners have taken a liking to the pastel shaded Pea-shaped florets that grow up the stems like miniature Snapdragons.

**Requirements:** Almost any soil will suit these hardy plants if it is moderately rich. Ground should be prepared some weeks beforehand, and well broken down. They favour lime, and up to 8 ounces to the square yard should be dug in if the ground has not been previously limed during the past 12 months.

**When to Sow:** This Spring-flowering annual blooms very quickly from seed and in climates experiencing only light frosts can often be flowered during the Winter. For these districts, Autumn sowings are best, and these can be continued through the Winter. The plants are not susceptible to ordinary frosts but, in very cold climates, Spring is the best time for sowing.

**How to Sow:** It is preferable to sow the seed where the plants are to bloom and afterwards thin out the seedlings 3 inches apart. They can also be transplanted if necessary, but a much better effect is obtained by the thicker sowings in the open ground and much time is saved in the period from sowing to flowering time.

**Cultivation:** As these plants can be easily smothered by weeds, shallow cultivation should be practised from the early stages. Once the weeds are allowed to develop before being pulled out, considerable damage will be done to the young plants, thus affecting their ability to produce an abundance of blooms. A good soaking once a week is necessary during dry weather and regular liquid manuring once the plants are established will ensure a generous display of flowers.

**Varieties — tried and tested under Australian conditions—see page 245.**

## LINUM.

### (FLAX).

A most dainty and colourful plant, giving an abundance of crimson flowers not unlike Gypsophila but borne on single stems. An added attraction is the contrasting jet black centre.

**Requirements:** Any average garden loam is suitable and a sunny position is preferred. Ample moisture is necessary during dry weather.

**When to Sow:** During the Autumn months and in cool climates during Spring.

**How to Sow:** Sprinkle seeds in a shallow drill where the plants are required to flower. Cover with about ⅛ inch fine soil and firm down with a piece of flat board. When seedlings are about an inch high thin out to 4 inches apart.

**Cultivation:** These plants can be easily swamped by weeds, particularly in their early stages, and regular cultivation is necessary to ensure weed growth is kept down as soon as it appears.

## LOBELIA.

Few plants carry flowers of such intense blue as Lobelia, particularly the popular Crystal Palace variety.

Lobelia are ideal subjects for window boxes, rockeries, as well as for edgings and massed garden effects. They like moderately rich loam, and liquid manure towards flowering time will increase the intensity of the colours.

Seeds are sown during the Autumn in seed beds or boxes. It is pressed lightly, but firmly, into the soil with a flat board and afterwards dusted over with some sieved loam or dry manure. Being very fine seed, it is easily washed out of the soil and should therefore be watered with a fine spray or atomizer, or by standing the box in about an inch or so of water until the moisture reaches the surface.

Seedlings are spaced 4 inches apart and are ready for transplanting when about 1 inch high. Choose a position that is exposed to the morning sun but sheltered from strong winds.

**Varieties—start with those specially recommended on page 245.**

## LOVE-IN-A-MIST.

**(See NIGELLA).**

## LUNARIA.

**(See HONESTY).**

*Dwarf Midget Lupins are both colourful and dainty.*

## LUPINS.

The most widely grown Lupins are the annual varieties which are so valuable for our warm and more temperate climate. The perennial type, whilst very beautiful, is more suited to the colder climates, such as Tasmania and Southern Victoria.

**Requirements:** Lupins are wonderful soil improvers and it is always an advantage to grow them in ground that has been maintaining heavy feeding crops, such as Marigolds and Zinnias. If soil has been heavily manured for a previous crop, it will probably need no more for Lupins. Over-rich soil tends to produce an abundance of foliage at the expense of blooms. Prepare soil well beforehand by digging it over and giving a generous dressing of lime, up to 1 lb. per square yard. Artificial fertilisers, such as No. 5, are suitable and should contain only a small proportion of Sulphate of Ammonia. Give them a warm, sunny position.

**When to Sow:** Sowings can be commenced in the early Autumn and continued until mid-Winter. They are hardy flowers and stand severe frosts.

**How to Sow:** Having large seeds, there is no difficulty in sowing them in the positions where the plants are to grow. For the Tall Large Seeded and Hartwigii varieties, allow 15 inches between plants (or seeds), and for the Russell Lupins, 20 inches between. There are also dwarf varieties that can be planted 9 inches apart. Seedlings do not transplant easily, but if desired can be sown in seed boxes or small tins filled with soil for transplanting when they are about 3-4 inches high. In either case, cover the seed with about ½ inch soil, and keep moist. It may be slow and erratic in germination and, if preferred, the growth can first be started by keeping the seed in moist sand. As soon as the skin splits, it should be planted.

**Cultivation:** Lupins are very easily cultivated and require nothing more than keeping the soil moist during dry weather. As the plants commence to bud they can have weak liquid manure and one dressing of Superphosphate, allowing 1 full teaspoonful to each plant. This should be well watered in. Keep the spent flowers regularly picked to prolong the life of the plant. When desiring blooms for indoor decoration, stand the stems in scalding water for about 18 seconds, taking care the steam does not damage the lower blossoms.

**Varieties you will want to grow—**
**—see page 245.**

## MARIGOLD (African).

Despite the many years gardeners have been growing them, African Marigolds are still among the most popular Summer-flowering annuals. Their bright colours and ability to grow in almost any soil is a great attraction for home gardeners everywhere.

**Requirements:** Whilst these Marigolds will grow in quite poor soils, they do not give the same splendid results as when the ground is made rich. Sandy, medium and heavy loams are all suitable. Lighter soils can have the addition of rotted cow manure, and heavy loams stable manure. Spread a good layer of manure, up to 4 inches, over the bed and dig this in. If the preparation of the soil can be commenced some weeks beforehand, the plants will benefit considerably and two diggings are better than one. Allow it to settle before transplanting. Choose a warm, sunny position with some shelter from wind.

**When to Sow:** As these plants are susceptible to frosts, sowings are commenced in the Spring and continued to about mid-Summer. The later sowings ensure some fine Autumn blooms, but would not be possible in climates with a short growing season. There should be a prospect of at least five months frost-free conditions after the seeds are sown.

**How to Sow:** Make up seed beds or boxes as described in Chapter 5. Sow the seed in shallow drills, covering with ¼ inch of soil. They germinate vigorously and, except in the early Spring, are above the ground in about 10 days.

**Cultivation:** Good strong seedlings transplant easily and if they are crowded in the seed boxes, should first be pricked out into a carefully prepared bed, spacing them 2 inches apart. This is done when they are about ½ inch in height. When 3 or 4 inches high they are ready for transplanting and should be set deep into the soil. Allow 18 inches between the plants, and 20 inches between rows. As they are shallow-rooting plants, mulching the soil is valuable during the hot weather. Lawn clippings, leaf mould, compost, or rotted manure is suitable for this purpose. Whilst they are very hardy, they require ample water during dry weather. Keep them weed-free and ensure that spent blooms are regularly snipped off.

**Varieties—a selection for your choice**
**—see page 245.**

## MARIGOLD (French).

These are equally as adaptable as the "Africans" but are, of course, Winter and Spring flowering. Rich, warm shades appear at a time when other flowers are very scarce.

The cultivation is almost identical with that for the African Marigold. The plants should be spaced about 18 inches apart and will repay for the addition of any manures to the soil. They like a fairly rich ground but will also do well in a medium loam.

Sowings are made in mid-Summer and Autumn for Winter and Spring blooms. In cold climates Spring sowings would be advisable as, although this flower stands some frost, it cannot contend with very low temperatures. However, owing to its ability

*The newer Carnation-flowered types of African Marigold, such as Gigantea Sunset Giants are superseding the older strains.*

to flower in the cooler weather, early Summer sowings are also practised to obtain late Autumn flowers.

**Varieties culled from the World's best—see page 245.**

## MATHIOLA.

A popular little plant for rockery culture or edging.

These plants thrive in almost any garden soil but prefer a moderately rich loam. Whilst they do quite well in the semi-shade, they thrive in the full sunshine.

Seeds are sown during the Autumn months for late Winter and Spring flowers. They germinate quite freely and can be sown direct to where the plants are to flower, scattering them over the surface and covering with about ¼ inch of soil. However, better results will be obtained by first sowing in a prepared seed bed and later transplanting the seedlings. When transplanting or thinning out the plants, space them about 6 inches apart, taking care to disturb the roots as little as possible.

Apart from ample watering during dry weather and, if possible, liquid manure towards flowering time, they require little other attention.

**Our recommendation is on page 246.**

## MATRICARIA.

### (CAMOMILE).

A very easily-grown flowering plant and a welcome addition to the white flowers.

These plants require similar treatment to Chrysanthemum, but once established require very little attention. They seem to do best in a shallow soil made moderately rich with rotted manure or compost. A 2-inch layer of either of these materials dug in before planting would be sufficient but an additional dressing of No. 12 ready-mixed fertiliser will ensure that the plants do not lack the necessary plant food.

Seeds are usually raised in prepared seed beds, covering them with about ¼ inch of fine soil and dry rotted manure. When about 3 inches high they are transplanted to their permanent positions, spacing them about 12 inches apart.

Plants flowering in the Autumn and during the Winter and early Spring should be cut down so that they can make new, strong growth for the following season. Even in warmer climates they will survive for several years.

**The Home-Gardener's choice—see page 246.**

## MESEMBRYANTHEMUM.

Although there are perennial types of this flower they are not usually grown from seed. However, annuals are easily grown to make a brilliant display during the Summer months.

These plants revel in hot, dry situations and, of course, the full sunshine. Almost any type of soil suits them, from heavy to sandy loam, and they should not be over-manured.

Sowings are possible from Spring to early Summer but as these plants are very susceptible to frosts, local climatic conditions must be considered.

Seeds can be either sown into prepared seed boxes or direct into the rockery soil, border or edging. Cover with about ⅛ inch of fine soil, firm this down thoroughly and keep moist until germination is complete.

When thinning out or transplanting the seedlings, they should be spaced about 6 inches apart. Until established, give sufficient water to keep the ground moist but after this they will thrive on very little water. Generally, perennial types recommended, for plants (only) in separate colours—page 192.

## MEXICAN POPPY.
### (See HUNNEMANNIA).

## MIGNONETTE.

Although not as striking as some annuals, Mignonette has a charm of its own and, of course, its fragrance is unequalled.

**Requirements:** The main requirement is a very rich soil; a 4-inch layer of rotted cow manure lightly dug into the surface soil would be a good dressing. Before incorporating the manure the bed should be dug to a good depth. These plants favour the presence of lime; a suitable application would be ½ lb. to 1 square yard.

**When to Sow:** Sowings are commenced in late Summer (January in Sydney) and can be continued through the Autumn and Winter. In cooler districts Spring sowings are also possible.

**How to Sow:** Mignonette seedlings are very difficult to transplant but not impossible, as many gardeners who have thinned out seedlings have frequently discovered. It is best, however, to sow the seed in the bed where it is intended the plants shall remain. They require a fair amount of room to grow and a spacing of 12 inches between plants is recommended. This may mean discarding a number of seedlings but, if these are handled at their second leaf stage, many of them will survive a re-planting.

It should be noted here that Mignonette is often erratic in germination and it is advisable to make two or three sowings from the one packet. Quite often a second or third sowing will give success after failure, or vice versa. As the seed is inclined to be slow to germinate, the soil should not be disturbed for 2 or 3 weeks.

**Cultivation:** Once the plants are established they need very little attention. A fortnightly application of liquid animal manure will stimulate them and ensure some good blossoms. All spent flowers should be continually removed.

**Varieties tor the Home Garden—see page 246.**

## MIMULUS.

To many gardeners these curiously shaped and marked blooms are known as "Monkey Flowers," although the origin of this name is a little obscure.

Although perennials, these plants should be treated as annuals in warm districts, and fresh sowings made each year. They are valuable for verandah boxes and hanging baskets, and grow well in semi-shaded positions. However, they are often grown in warm, sunny situations, in garden beds, with considerable success.

They favour a fairly light loam and heavy soils will benefit with the inclusion of a little sand. Stable manure, rather than any other kind, will tend to lighten heavy soil.

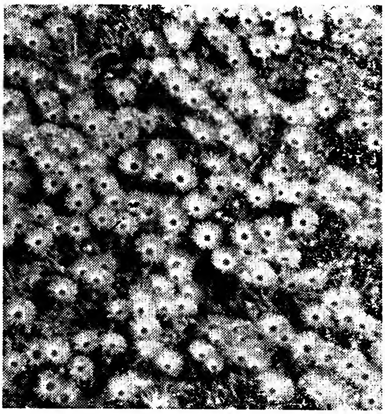
Seed is sown during the Autumn months, using seed beds or boxes of finely prepared soil. Cover with about ¼ inch of leaf mould or dry, sifted manure. Transplant seedlings 9-12 inches apart, and during dry weather give ample water.

**For the most suitable variety see page 246.**

## MONARCH OF THE VELDT.
### (See VENIDIUM).

## NASTURTIUM.

Vast improvements have been made with this flower in recent years and the newer Hybrid types are finding favour with gardeners every-



*Mesembryanthemum Criniflorum is an incredibly free-flowering plant for rockery or border.*

where. Not only are they colourful and in some cases fragrant, but also very hardy and have a long blooming period.

**Requirements:** Nasturtiums will grow in almost any soil, but over-richness causes a heavy foliage growth which hides the majority of flowers. A moderately poor soil will mean less leaf growth and a much better show of blooms. Nasturtiums prefer the sunlight, but also make a good showing in the partial shade.

**When to Sow:** In climates similar to Sydney, Autumn and Spring sowings can be made but, in cold climates it is possible to sow only in the Spring.

**How to Sow:** Sowings are made where the plants are to bloom and, as the germination is sometimes erratic. allowance should be made for this by a closer sowing than would otherwise be necessary. The Gleam and Globe Nasturtiums can be sown about 12 inches apart.

**Cultivation:** Nasturtiums are not over particular about attention after they are well established, but benefit from frequent watering. Excessive liquid manuring will tend to improve the foliage only.

**Varieties which you will want to grow—see page 246.**

## NEMESIA.

This ranks high in the list of flowers that have risen rapidly in popularity in recent years. It is one of the prettiest of the Spring and Winter-flowering annuals and its rich colours are always admired.

**Requirements:** The soil should be rich and loamy. They do quite well in heavy land, but prefer the presence of a little sand. Nevertheless, heavy soils, which have been limed and then dressed with horse manure, are usually very suitable. Sandy soils require a dressing of cow manure.

**When to Sow:** During the Autumn the early and late Autumn right through until the Spring. This is another flower for which it is best to sow the seeds where the plants are to bloom. They prefer a sunny position. In cold climates where Spring sowings only are possible in the open ground, it is usual for a sowing to be made in the Autumn and to be put out into the open ground in the Spring after being sheltered during the Winter.

**How to Sow:** Nemesia seed is not difficult to raise but should have a good covering of fine soil—say ¼ inch. This should be pressed firmly over the seed with a flat piece of board. Sowings are either made in seed boxes or beds, as described in Chapter 5. If seedlings are too crowded, they should be pricked out into either boxes or beds when about 1 inch high, preparing the soil much in the same way. If sowings are made in hot weather, light shade is advisable, but this should be gradually removed before transplanting so that seedlings are thoroughly hardened. A week or so before transplanting, withhold water as much as possible, but give a thorough soaking the night before to ensure that the soil clings to the roots.

**Cultivation:** For really bushy growth in the Strumosa type, the leading stems can be pinched back. The rows should be marked out 9 inches apart for the Tall type and 6 inches apart for Compacta. About the same distance is required between the plants themselves. With ordinary care and occasional applications of liquid manure, blooms will be obtained in 3½ to 4 months from sowing. The after-care consists of keeping the soil well cultivated between the plants and regularly watering during dry spells.

**Choose from the selected varieties on page 246.**

## NEMOPHILA.

### (BABY BLUE-EYES).

A charming dwarf annual well worth a place in the garden border.

**Requirements:** A moderately rich garden loam and a sunny situation.

**When to Sow:** During the Autumn months for temperate climates and in Spring for cold climates.

**How to Sow:** Seedlings do not transplant readily and it is advisable to sow the seed where they are required to flower. Make a shallow drill and cover with about ⅛ inch fine soil, firming this down with a flat piece of board.

**Cultivation:** When about 2 inches high, thin out to about 4 inches apart. Give ample water during dry weather and keep the plant free of weeds by shallow cultivation.

**The next step is choosing a good variety—see page 246.**

## NIEREMBERGIA.

### (DWARF CUP FLOWER).

A charming dwarf border or rock garden perennial.

**Requirements:** Well prepared garden loam to which has been added some rotted manure.

**When to Sow:** Autumn and early Winter.

**How to Sow:** In fine soil, covering the seed to a depth of about ⅛ inch. Press down firmly with a flat piece of board and water carefully.

*The dainty Blue Gem Nemesia is very popular but deserves to be even more widely grown.*

**Cultivation:** Transplant seedlings when about 2 inches high, spacing them 8 inches apart. Water well after planting and keep moist in dry weather. When the plants have finished flowering, cut back for a further flush of blooms the following season.

**A choice variety—see page 246.**

## NIGELLA.

### (LOVE-IN-A-MIST).

Because its attractive light blue flowers are quaintly hidden in a fern-like foliage, this plant has earned the name of "Love-in-a-mist."

Seed is sown during the Autumn months in boxes or seed beds, and seedlings are afterwards transplanted 9 inches apart. Best results are obtained in moderately rich loam and a position sheltered from winds and hot sun. Plants grow about 15 inches high, and are excellent for indoor decoration.

**The Home-Gardener's choice—see page 246.**

## ORNAMENTAL CHILI.

### (See CAPSICUM).

## PANSY.

No Winter or Spring garden scheme is really complete without at least one bed of Pansies. Unfortunately, they are often confined to narrow borders, but their real beauty is seen when they can fully display their rich colours in broad masses. Once established, the richly marked Exhibition and Hybrid varieties are no more difficult to grow than the commoner Bedding type.

**Requirements:** The situation for a bed of choice Pansies should be selected so that they may have shade from the hot afternoon sun when in flower. At the same time they must be well away from the roots of large trees and shrubs. The beds should be kept well watered, although stagnant water at roots must be avoided. We prefer a situation sloping to the east if possible. The condition of soil should be rich and light, though without a suspicion of rank manure in it. The tender roots of the Pansy should never be brought into contact with any strong manure. If you can arrange to have a load or two of good cow manure laid up in a heap for a few months, you will be in a position to bring up the soil to the proper state by well mixing the decayed cow manure in it a few weeks before the plants are put out.

**When to Sow:** Whether the commoner bedding types or large Exhibition strains are grown, the gardener is always rewarded by the continual succession of blooms from the late Winter until the end of Spring. In climates similar to and warmer than Sydney, sowings are commenced in February through to early April. For cold climates, Spring sowings are advised.

**How to Sow:** Although sowings can be made in the open ground where the plants are to bloom, it is better to use boxes or seed beds, especially for the Exhibition sorts, which are sometimes slow and not so regular in germination. Keep the soil uniformly moist and choose a cool, shady spot until the little plants are large enough to handle; always sow thinly—if the plants are too crowded they are liable to damp off. Prick out into boxes 2 inches apart when large enough, and keep well watered and in partial shade until they are to be planted out.

**Cultivation:** Plant in rows 15 inches apart, and have the plants a foot apart in rows. This is for obtaining large exhibition blooms. If planting for garden display, 9 inches apart each way will be sufficient, and the plants will cover the beds when in flower.

If the blooms appear small at first, a little disbudding is advisable. The early blooms are generally the finest and, if required for show, not more than 4 or 5 should be allowed to come along at once. As soon as the Spring sunshine commences to make itself felt, a mulch of some sort is advantageous in the way of checking evaporation from the soil. Water must be applied with no sparing hand, and weak liquid made from cow manure and soot may be applied as soon as the buds are noticed. Sulphate of Ammonia may also be used. The rest of the cultivation will consist in keeping the ground free from weeds, removing dead blooms, and gently pricking over the space between the rows to prevent the soil becoming set by watering or heavy rains.

**Varieties culled from the World's best—see page 247.**

## PAINTED DAISY.

**(See CHRYSANTHEMUM ANNUAL).**

## PELARGONIUM.

Also known as Geranium. These plants have enormous value for Australian gardens, being both frost-hardy and drought-resistant.

**Requirements:** Almost any garden soil is suitable but if very poor can have the addition of rotted manure. Over-manuring will increase the growth of the foliage at the expense of the flowers. A sunny situation is preferable but they will also grow in the semi-shade.

**When to Sow:** During the late Summer and Autumn months.

**How to Sow:** Make a seed bed or fill a seed box with fine soil, covering seed to a depth of about ⅛ inch. Press down firmly and keep moist.

**Cultivation:** Transplant seedlings when about 4 inches high, spacing them 15 inches apart. Whilst these plants will stand dry weather, it is better if they could be given some water during dry periods. After flowering they should be cut back and given a mulch of rotted manure or compost.

## PENTSTEMON

A hardy perennial plant suitable either for open borders, or bush-houses. They bloom continuously throughout the Spring, Summer and Autumn months.

Seed is sown during the Autumn months in prepared seed boxes or beds. Being fairly fine, it is given only the lightest covering of leaf mould or sifted manure, and may take 14-21 days to germinate. Seedlings are transplanted 12-15 inches apart in moderately rich ground. After flowering, plants can be cut back for a further flush of blooms, and if cared for will last for many years.

**For Seed, page 247. Named Plants, 192.**

*The exhibition Pansies such as Champion Fancy are well worth the little extra care and expense.*

*Once established the frilled Exhibition Petunias are just as easily grown as the Bedding types.*

## PERENNIAL PEA.

**(See LATHYRUS).**

## PETUNIA.

When the Summer is at its hottest, Petunias, whether they are the Exhibition or Bedding types, seem to do their best to make the garden as bright as possible. They bloom quickly from seed, are very easily cultivated, and grow well in a variety of soils.

**Requirements:** The Bedding Petunias, of which there are Tall and Dwarf sorts, grow 12 to 18 inches high and make a brave show of bright colours during the Summer months. They will withstand very dry conditions and thrive in hot sunshine. The Exhibition types are also hardy, but require a little more attention, including some protection from heavy winds. The height of these ranges from 18 inches to 2 feet, and these sorts usually require some support in the form of a wire strung along the bed or stakes—one to each plant. The Double and Single Exhibition varieties make splendid pot plants. They can be planted in the pots when the first flowers prove true and outstanding as individual specimens.

The soil for Petunias can vary from a sandy to a fairly heavy loam. It is better if enriched with horse manure for heavy soils and cow manure for very sandy soils, provided this material is old and thoroughly rotted. A good dressing of lime three weeks before the manuring will improve the soil considerably and Petunias thrive on it. The position of the bed should, of course, be in a sunny spot sheltered from violent winds.

**When to Sow:** Sowings are made as soon as the frosts are over in the Spring and continued until mid-Summer or until 4 months of frost-free conditions remain.

**How to Sow:** Particular care should be taken in sowing the seed itself. It is very fine and sometimes a little slow and erratic in germination. Only the lightest covering of seed bed compost should be spread over the seed, and special attention should be paid to watering. This applies to all types of Petunia, but more especially to the Exhibition sorts. Read thoroughly the instructions on seed raising (page 29) before attempting to raise the more expensive sorts.

Where early seed raising is done in the cooler weather in protected positions, the atmosphere in the bush or glasshouse should be at a temperature of at least 65 degrees. A covering of glass over the seed box will help where no such building is available.

**Cultivation:** When planting out, space the Bedding sorts 12 inches apart and the Exhibition and other fancy varieties 15 inches apart. The former type will grow almost unattended, but the latter will benefit from occasional waterings with liquid manure and, of course, ensuring regular moisture. After the first Summer flowering, the plants can be cut back and will often throw a good second flush of bloom in the Autumn.

**Choose from the selected varieties on page 247.**

## PHACELIA.

**(CALIFORNIA BLUEBELL).**

A showy, frost-resisting annual that blooms quickly from seed.

**Requirements:** A warm sunny situation, and well drained, moderately rich soil.

**When to Sow:** During the late Summer and Autumn months for temperate climates, and Spring in cold climates.

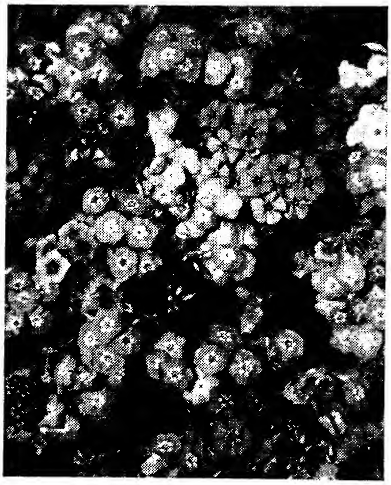
**How to Sow:** As the young seedlings do not transplant readily, it is preferable to sow seeds where plants are required to flower. Distribute seed sparsely along the shallow drill made in the prepared soil and cover lightly with sifted soil or dry rotted manure. Press down firmly and keep moist.

**Cultivation:** When seedlings are about an inch high, thin out to 9 inches apart. If transplanting is attempted, lift as much soil as possible with the seedlings and water immediately after planting. Give ample water during dry weather and liquid manure about every ten days towards flowering time.

## PHLOX.

The cultivation of this plant is so well known that it hardly seems necessary to describe it. During the hot Summer months there are few gardens indeed that do not have a gay display of these favourite annuals.

**Requirements:** Phlox will grow in most soils but prefer a moderately rich loam. They favour a warm, sunny situation and will stand quite an amount of dry weather. However, if plants can be liberally watered during drought, far better results will be obtained.



*In good strains of Phlox, such as our Derwent Mixture, there are all sorts of colour combinations as well as single-colour blooms.*

**When to Sow:** Seed is sown from early Spring until Summer. In mild climates where there are practically no frosts, Autumn sowings are also possible.

**How to Sow:** It is usual for seed to be sown where the plants are to grow and they are either scattered over a large bed or hand-set in rows 8 inches apart. Seed germinates freely, providing it is not sown too deeply. Cover with about ¼ inch of fine soil and keep moist. Seed is also sown in prepared seed boxes or seed beds and seedlings afterwards transplanted.

**Cultivation:** Space or thin out seedlings to 6 inches apart, taking care not to disturb the shallow root system. Water well after transplanting and maintain this throughout their growing season. They will respond to regular applications of liquid manure, particularly when they are first showing buds. Remove flowers as they fade to prolong the life of the plants.

**Varieties—a selection for your choice see page 247.**

## PIN CUSHION.

**(See SCABIOSA).**

## PLATYCODON.

### (CHINESE BELL FLOWER).

A Summer-flowering dwarf border plant and a valuable addition to the garden perennials.

**Requirements:** A cool, semi-shaded situation and a moderately rich garden soil.

**When to Sow:** In temperate climates during Autumn and in cold climates in the Spring.

**How to Sow:** Make a seed bed of fine soil and sow seeds as sparsely as possible in shallow drills 2 inches apart. Cover with ⅛ inch sifted loam, press down firmly and keep moist.

**Cultivation:** Seedlings can be transplanted when about 2 inches high, spacing them 9 inches apart. They should have ample water during dry weather and the roots kept cool by mulching at the start of the Summer. Give liquid manure when plants show signs of buds.

## POINCIANA GILLESII. (BIRD OF PARADISE).

A valuable shrub for semi-tropical and tropical districts with a similar climate to Sydney. During Summer there is a bright display of yellow, bird-like flowers with red anthers, contrasting with the fern-like foliage.

**Requirements:** A warm sunny situation, sheltered from the worst winds and a fairly rich soil.

**When to Sow:** During Spring and early Summer.

**How to Sow:** Seed can be sown in seed beds, seed boxes or pots made up of fine soil with the addition of some very old, rotted manure. Cover with the same soil to a depth equal to the thickness of the seed itself and mulch the surface with leaf mould or dry, rotted manure. To hasten germination the skin of the seed can be clipped or nicked with a sharp knife.

**Cultivation:** When plants are about an inch high they can be transferred to small pots or tins and later to larger pots. If sparsely planted in a seed bed in the first place, say 3 inches apart, they can be left until they are 4 inches high and then transferred into their permanent positions. If several plants are planted, space 6 feet apart. Ample water is necessary during dry periods and a mulch of compost, rotted manure or lawn clippings is beneficial during the Summer months.

**Our recommendation is on page 248.**

## POLYANTHUS.

A Spring-flowering Primrose-like plant with many rich and varied colourings.

**Requirements:** A cool, sheltered position partially shaded or a bush-house. It can be grown in open beds or in pots.

**When to Sow:** During the Autumn and early Winter months.

**How to Sow:** Fill seed boxes with a good mixture of loam, sand and dry rotted manure in equal parts. Press this down firmly with a flat piece of board and make shallow drills about ⅛ inch deep and 2 inches apart. Distribute the seed sparsely along drills and cover with ⅛ inch of finely sifted mixture, as described above. Press down again firmly with the board and keep constantly moist.

*The tall Azalea-flowered Godetias are very welcome during the late Spring lull of the flowering annuals.*

**Cultivation:** Germination is sometimes irregular and plants may not all be ready at the one time. The soil in the seed box should not be allowed to dry out so that all the seeds can germinate. Space seedlings about 9 inches apart or, if potting, use the same mixture as advised for seed raising.

**For Seeds, page 248. Established Plants, 192.**

## POMEGRANATE.

A dwarf, shrub-like plant, and a very ornamental perennial for a low border.

**Requirements:** Average garden soil and a fairly sunny situation.

**When to Sow:** During Spring and early Summer.

**How to Sow:** Prepare a seed bed of fine soil, spacing seeds about 2 to 3 inches apart in straight rows. Cover with about ¼ inch of good loam, press down firmly and keep moist.

**Cultivation:** When seedlings are about 2 inches high they can be transplanted, spacing them 18 inches apart. After the crop of fruit has finished they can be lightly pruned. Fruit is inedible but not poisonous.

**For the best variety see page 248.**

## POOR MAN'S ORCHID.

(See **SCHIZANTHUS**).

## POPPY (Iceland).

Gardeners who recall the Iceland Poppy of many years ago will agree that modern strains, with their long stems and large cupped blooms, are hardly the same flower as those early specimens. Every Winter, literally millions of these blooms are picked for florists' use as well as by home gardeners for indoor decoration. They have now become Australia's pre-eminent Winter flower.

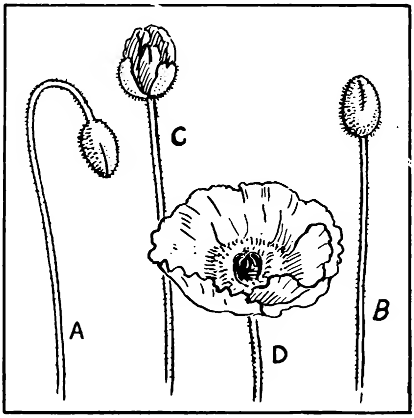
**Requirements:** Iceland Poppies will grow in almost any well dug garden loam, which has been broken up fairly finely and well manured. They are gross feeders, and can absorb almost unlimited quantities of plant foods; a good foundation is a liberal application of well-rotted animal manure. It would not be too much to use a 4-inch layer over the bed and dig well in. As a further plant food, Shirley's No. 12 is good and safe to use if the directions given on the packet are adhered to. A mixture consisting of one part Potash, two parts Superphosphate and two parts Blood and Bone—applied at the rate of 2 ounces to the square yard—is another good feeding medium.

Iceland Poppies depend on the sunlight for the breaking of their blooms in the early morning, and where possible the most sunny position in the garden should be reserved for them. They especially favour the morning sun. Make certain also that the soil where they are to be planted is well drained.

**When to Sow:** In climates similar to, and warmer than Sydney, sowings are commenced at the end of January and through February, probably not finishing until the Winter commences. The early sowings provide a wealth of Winter blooms, but the young seedlings need considerable nursing during the hot mid-Summer weather. For preference, the seed box should be kept in a shaded bushhouse, and later on the young seedlings can be gradually hardened off in the sunlight. In cold climates, experiencing very severe Winters but cool, early Summers, the seed can be sown in the late Autumn, and the young seedlings nursed through the Winter to be put out at the first signs of Spring. The plants themselves are not susceptible to ordinary frosts.

**How to Sow:** The seed is fairly fine, and it is only necessary to give it the very lightest covering of soil or compost as described in the instructions on raising seedlings (see page 29). It is essential to avoid overcrowding the seedlings but, if the seed is mixed with two parts of silver sand a much thinner sowing is assured. "Pricking out" is usually necessary to obtain strong, healthy plants; therefore it is much better to move them into other boxes or seed beds when they are just large enough to handle. Space them about 1½ inches apart.

**Cultivation:** As soon as the young seedlings look fit to transplant, a cloudy day should be chosen for preference; and the bed in which they are to be planted given a good soaking some hours beforehand. To assist the young roots to obtain a good grip of the soil, a little sand or seed bed compost can be incorporated in the hole where they are planted. It is essential to plant the crown well above the ground; if the soil should cover the crown the plant will quickly rot. Once the seedlings are



*The development of a Poppy flower is shown in four stages: (a) Stem bent during growing period. (b) The day prior to bursting the stem straightens. (c) The bud splits. (d) Fully opened flower. The Poppy can be picked at any of the last three stages, but preferably at "C".*

planted, the soil must be kept sufficiently moist to keep them alive, but heavy watering should be avoided until the plants are well established.

The usual spacing between plants is 10 inches with 12 inches separating each row. This enables the foliage to practically cover the ground and so provide a more picturesque background for the flowers as well as sheltering the roots.

When flowers are required for the house they should be picked early in the morning before the bees destroy the pollen-loaded stamens.

If the stems of Poppies are plunged in boiling water for 15 seconds they will last much longer in the vases.

It is essential to keep these plants healthy right from the early stages. (See notes page 212 on sterilising seed beds and hints on the control of Root and Crown Rot.)

**Varieties—our choice for Home Gardens—see page 248.**

## POPPY (Shirley).

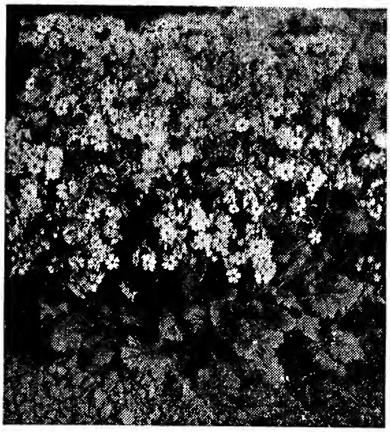
Before the Iceland Poppy became so popular these flowers were very extensively regarded. They still have plenty to recommend. Colours are mostly in pink shades and blooms have an unusual crepe texture.

**Cultivation:** These can be given very similar cultivation to the Iceland Poppy but it is advisable to allow more space between the plants—usually 18 to 20 inches each way. Sowings in mild districts can commence in the early Autumn for Winter flowering and late Autumn sowings in cold districts for Spring planted seedlings, which must be nursed through the Winter so that they are of a suitable size for transplanting when the first signs of Spring weather appear. Further sowings can be made in cold districts during the Spring.

**See page 248 for our recommendation.**

## PORTULACA.

A Summer-flowering annual noted for its bright colours and often called "Pig Face" or "Sun Plant." Plants grow close to the ground and their vividly coloured blooms make it a gay carpet for most of the Summer.



*Primula Dawkins Pink—for the bush house or shaded garden spots.*

**Requirements:** Most garden soils suit these plants but they can be improved by the addition of a 2-inch layer of rotted manure, well dug in. Prepare the ground some weeks before planting, allowing it to fallow and dig again about a week before seedlings are ready for transplanting.

**When to Sow:** Seed is sown during the Spring when all danger of frosts is over, but for early flowers seed can be raised in sheltered, frostfree positions or in cool frames.

**How to Sow:** Seeds are often scattered over the soil in which the plants are to grow or they are sown in rows. In either case, cover with about ¼ inch of fine soil and keep moist. Seedlings transplant fairly easily and where preferred seed can be sown in seed beds or boxes. (See Chapter 5.)

**Cultivation:** Transplant or thin out seedlings to about 4 inches apart, pressing the soil firmly around the roots in the case of those that have been moved. After thinning out or transplanting, water thoroughly and again consolidate the soil. Portulaca stand a great amount of dry weather and as they grow over the ground the plants shelter their own roots and smother weeds. However, we suggest shallow cultivation should be practised to keep down the first weed growth, taking care not to disturb the root system.

**Varieties—make a suitable choice from those on page 248.**

## PRIMROSE.

This is the ever-popular and sweetly-scented English Primrose, which is seen at its best in cool climates.

The instructions for the growing of this flower is identical with that of Polyanthus. (See page 125.)

**For the Home Garden—see page 248.**

## PRIMULA.

As well as making a delightful bedding plant for semi-shaded positions, the Malacoides Primula provides an easily grown pot plant for indoor Winter decoration. The Obconica type is a little more difficult to grow and is usually confined to a glass-house or bushhouse.

**Requirements:** Primula do best in a semi-shaded, moist position, although they will also grow quite well in fairly sunny situations. They like a well-limed soil and up to 1 lb. of lime per square yard can be dug in. This should be given at least three weeks before planting or adding manure. Either sandy or heavy loam suits them but, for the latter, stable manure is preferred, whereas for sandy soil cow manure will produce better results. A 2-inch layer spread over the ground and well forked in should be sufficient for these plants.

**When to Sow:** The first seed is sown during the late Summer months (January to February in Sydney) and seedlings should be ready for planting out in March. This ensures blooms for May, and at this time of the year flowering may extend for 12 to 14 weeks. Sowings, however, can be continued right up until the end of Autumn.

**How to Sow:** Seed is very fine and should be barely covered with soil or dry, sifted manure. Sow in seed boxes, making shallow rows with the edge of a thin batten, which is pressed on to the surface. Cover with about ⅛ inch of soil. If seedlings are too crowded after germination, they should be pricked out when quite small into similarly prepared seed boxes or beds, spacing them about 2 inches apart.

**Cultivation:** Those plants intended for pot culture should be selected and first put into small pots and later transferred to the 4 to 6-inch size. The bottom of each pot should be covered with coarse drainage, such as clinkers or broken crockery, and the pot is then filled with a good mixture of 2 parts loam, 1 part rotted manure and 1 part sand. Choose a favourable cool day for transplanting, and seedlings in garden beds should be spaced about 9 inches apart. Keep well watered during dry weather and give liquid manure when the plants show signs of buds.

**Varieties—popular because they have proved best—see pages 248, 249.**

## PYRETHRUM.

An unusual foliage plant for borders or carpet bedding and a hardy perennial.

**Requirements:** An open, sunny situation, although they also succeed in partial shade. Any moderately rich garden loam seems to suit them.

**When to Sow:** During Autumn in mild climates and in Spring for cold climates.

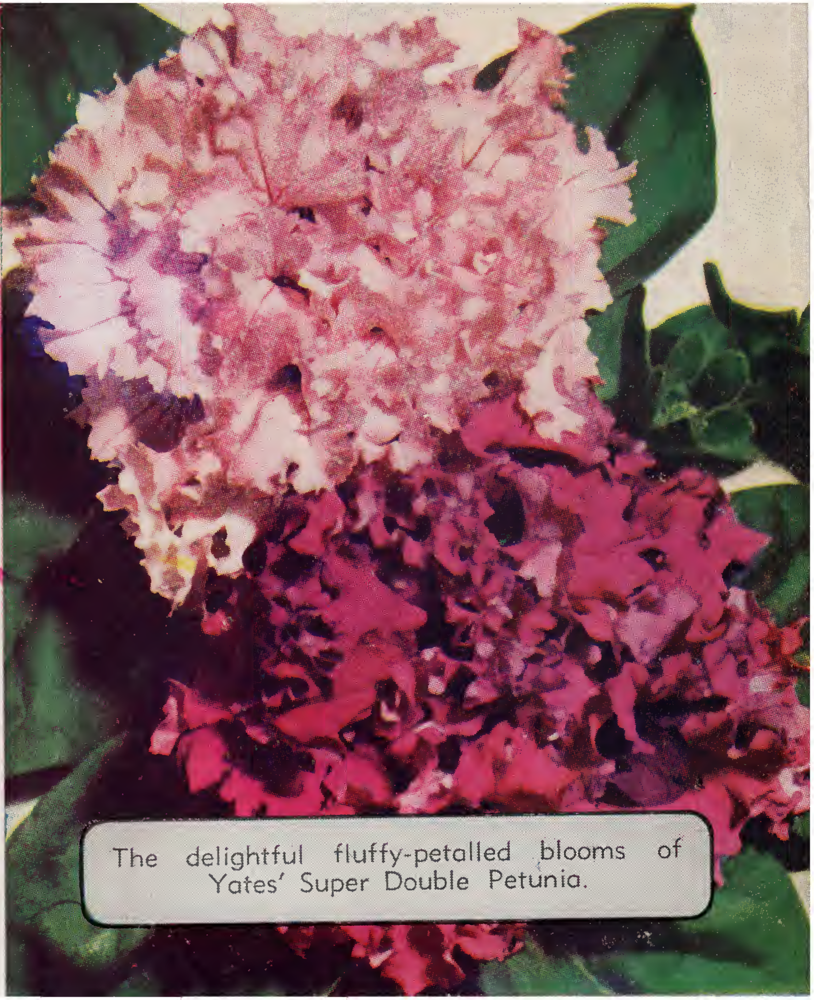
**How to Sow:** In a seed bed of prepared soil, covering the seed to a depth equal to about twice its thickness. Press down firmly with a piece of flat board and keep moist.

*Ranunculus are quite easily grown from seed and there is a tremendous range of types and colours.*

Colourful and hardy Anemones (Yates' St. Brigid strain)—the ever-welcome mid-spring visitors.

The stately and ever-popular Gladioli — so useful for indoor decoration.

Perfection in single Petunias; Yates' Superb Exhibition (Superbissima Grandiflora) strain.



The delightful fluffy-petalled blooms of Yates' Super Double Petunia.

**Cultivation:** Seedlings can be transplanted when about an inch high or a little more, spacing them 3 to 4 inches apart. Very little cultivation is necessary apart from keeping the plants weed-free and giving ample water during dry weather. Plants may have a tendency to flower which will spoil the foliage effect and buds should be nipped out as soon as they appear.

## RANUNCULUS.

The majority of Ranunculus are grown from bulbs purchased during the Autumn months. Equally good results are obtained by sowing seed, although a little more trouble is involved. After the first year's flowering, small bulbs are formed for planting the following year.

**Requirements:** The finest flowers are seen where plants are given a sunny position, sheltered from strong winds. They favour a fairly rich soil that has been given careful preparation some weeks before planting.

**When to Sow:** Seed sown in January should give blooms the following Spring. Owing to the very hot weather, germination is sometimes a little erratic. Some gardeners and commercial growers therefore sow in May but it is unlikely flowers will be obtained until the second Spring from these sowings.

**How to Sow:** For all hot weather sowings, cool as possible positions should be chosen and it has been found that the ideal temperature for these seeds to germinate is 68 degrees F. Germination under favourable conditions usually commences in about 15 days and some commercial growers find it advantageous to mix the seed with about 10 times as much sand. This is kept moist if stored in a cool place until the skin of the seed is split by the young roots. It is then sown in the normal way but, of course, there must be no drying out of the seed and after sowing the ground should be thoroughly watered. Cover the seed with about ¼ inch of soil, press down firmly and keep moist.

**Cultivation:** Seedlings are transplanted when about 2 inches high and spaced 8 inches apart. The best effect is obtained when they are planted in large masses with the rows 9 inches apart. Ample water should be maintained during dry weather and liquid manure at 10-day intervals from the day they start to bud.

**For Seed, page 249.**
**For Bulbs, Mixed and Named, 172.**

## RHODANTHE.

An attractive "everlasting," displaying flowers of papery texture. These are carried on stems 12 inches long and droop gracefully.

**Requirements:** Practically all loams are suitable but, if poor, can have the addition of some rotted manure. They thrive in a sunny position.

**When to Sow:** In Autumn and Spring for cold climates.

**How to Sow:** In prepared seed beds or direct into the border where the plants are to flower. Cover with about ¼ inch of fine soil, firm well and keep moist.

**Cultivation:** Transplant seedlings when about 2 inches high, spacing them 9 inches apart. If thinning out seedlings into permanent positions, avoid disturbing the roots of the remaining plants. Flowers required for indoor decoration can be hung head downwards till the stems dry, or they can be used immediately.

**For a good variety to sow see page 249.**

## RUDBECKIA.

An easily grown Summer-flowering annual and especially suited to warm and dry places.

**Requirements:** Practically all loams are suitable but if very poor should have the addition of rotted manure or compost. They thrive in a warm, sunny position.

**When to Sow:** During the Spring and early Summer months.

**How to Sow:** In prepared seed beds or boxes, covering the seed with about ¼ inch of fine soil, which should be firmed down and kept moist.

**Cultivation:** Transplant seedlings when about 1½ inches high, spacing them 12 inches apart. Although these plants withstand dry weather, they will respond to regular watering if this is possible.

**The variety our customers grow—see page 249.**

*The fiery scarlet blooms of the Splendens Bonfire Salvia make a striking contrast to the greenery of shrubs or other flowering annuals.*

## SALPIGLOSSIS

These can be numbered amongst the more unusual flowering annuals and during the Summer months they provide a rich display of colour.

**Requirements:** Salpiglossis will grow in any good garden soil which has been well dug and to which some rotted manure has been added. It prefers an open, sunny position.

**When to Sow:** In most climates Spring sowings are usually made but in districts where the Summers are very hot and Winters are entirely frost-free and warm, such as in tropical climates, Autumn sowings are best.

**How to Sow:** They do not transplant easily and it is advisable to raise the seedlings in the bed where the plants are to flower. With a little care, however, and while the seedlings are very small, they can be transplanted if conditions are favourable.

**Cultivation:** If they have not been too thickly grown in the seed box it will be possible to move them without disturbing the roots unduly. The rows should be 8 inches apart, with 6 inches between the plants themselves. Once the plants are established, they will benefit from applications of liquid manure once every 10 days and regular watering every week in dry weather.

**Make sure of a good variety—see page 249.**

## SALVIA.

### (FLOWERING SAGE).

Although it is mostly seen in large masses, Salvia is remarkably effective when used as a background to other plants or interspersed through the borders with plants of similar height and growth.

**Requirements:** This is one of our most useful perennials. In mild climates it will bloom prolifically almost the whole year round and if sheltered from frost will display a number of Winter blooms. It is often treated as an annual, especially in cold climates experiencing severe Winters, but in districts similar to and warmer than Sydney its effective life is two years. On the other hand, the finest flush of bloom is produced the first year.

It likes a good garden loam to which has been added a generous quantity of some old rotted manure. The situation for Salvia should be sheltered from the worst winds. It also likes a sunny position and a well-drained soil.

**When to Sow:** The seed should be sown in the early Spring and in cold climates might need a little warmth. In those districts also it is not possible to plant out into the open ground before October but where frosts are not expected after mid-Summer the plants can go out during that month. Although established and well grown plants are not affected by light frost, the younger seedlings should be protected from it.

**How to Sow:** The seed is best sown in seed boxes or well made seed beds and, providing it is given ordinary care, it is not difficult to germinate. The main thing to consider is warmth, because this seed is extremely difficult to germinate under cold conditions. For this reason it is better to keep the soil moist without being too wet.

**Cultivation:** There are two types of the Red Salvia—Tall and Dwarf. The plants of the former should be spaced 15 inches apart in rows 18 inches apart. The more dwarf sorts require only 10 inches between the plants in rows 12 inches apart. Early blooms of Salvia can be expected in 4 to 5 months and they quickly establish themselves into good strong plants if given ordinary care. They favour occasional watering and applications of liquid manure from time to time.

**Varieties which are hardy in Australian gardens—see page 249.**

## SAPONARIA VACCARIA.

### ("BIG GYP").

Whilst in no way related to Gypsophila, these flowers are somewhat similar and widely used for vase decorations with other blooms, such as Gerberas and Carnations. Plants are easily grown and the flowers last well after cutting. For cultivation see Gypsophila, page 110.

**For the variety to grow— see page 249.**

## SCABIOSA.

### (PIN CUSHION).

In recent years both the size of the flowers and the range of colours have been considerably increased. The hardy Pin Cushion is now amongst the foremost of the Spring-flowering annuals.

**Requirements:** Most soils grow Scabiosa to perfection, providing they are well prepared beforehand and given liberal dressings of rotted manure or compost. These plants require a sunny position sheltered from strong winds. They resent soil that has any tendency to waterlogging after rain but need ample watering during dry weather.

**When to Sow:** In temperate climates seed is usually sown in Autumn for Spring flowers, but Spring sowings for Summer flowers are also possible, and in districts similar to Sydney the sowing season extends from January to September.

**How to Sow:** Make prepared seed beds or boxes as described in Chapter 5 and cover the seed with ¼ inch of soil or sifted dry manure. Press down firmly and keep moist.

**Cultivation:** Seedlings are transplanted when from 3 to 4 inches high into ground which has been previously well dug and broken down into fairly fine particles. Space them 15 to 18 inches apart and, for preference, provide a stake for each plant.

**The Home Gardener's favourite variety—see page 249.**

## SCHIZANTHUS.

### (POOR MAN'S ORCHID).

A Spring-flowering annual, particularly valuable for semi-shaded positions, for the bush-house or pot culture.

**Requirements:** A moderately rich soil in a well-drained position, sheltered from strong winds. They like semi-shade but will also thrive in a sunny position if they are shaded during the hottest part of the day. If grown in pots it is better to introduce a little sand where the soil available is heavy loam. A good mixture is equal parts of sand, loam and dry rotted manure.

**When to Sow:** During the late Summer and Autumn months.

**How to Sow:** In prepared seed boxes or nursery beds, making the soil fairly fine by sieving. Seed should be only very lightly covered, preferably with some dry rotted manure which is pressed down firmly with a flat piece of board. Germination may take up to three weeks and during this time the soil should be kept moist and undisturbed.

**Cultivation:** Seedlings are ready for transplanting when about 2 inches high. Those planted in beds should be spaced about 12 inches apart. and for potting they should be first placed in a small pot or tin and later transferred to a larger size.

To induce generous bushy growth young plants should be pinched back frequently. Ample moisture is necessary throughout their growing period and when well established they can be given liquid manure approximately every ten days. A little bone dust scattered around the plants and well watered in will also encourage more and better blooms

**For a suitable Home Garden variety see page 248.**

## SESBANIA.

A shapely, quick-growing shrub, easily raised from seed.

**Requirements:** Moderately rich soil and a warm, sunny situation, preferably sheltered from strong winds.

**When to Sow:** During the Spring and early Summer months.

**How to Sow:** Seeds can be sown direct where the plants are to grow or in the prepared seed bed. Sometimes small pots or tins are used so that the young plants can be transplanted without disturbing the roots. These, however, dry out quickly and must be watered every day in dry weather. Seed has a hard shell and to assist germination the skin can be nicked with a sharp knife, taking care not to damage the "eye." Cover the seed with fine soil and dry rotted manure equal to about twice its own thickness.

**Cultivation:** Transplant seedlings when about 6 inches high, taking care not to disturb the tap root. Water thoroughly after transplanting and shelter from hot sun. If several plants are grown, space them 8 feet apart.

**Selected variety for the Home Gardener—see page 249.**

## SHASTA DAISY.

### (CHRYSANTHEMUM LEUCANTHEMUM).

These are hardy free-blooming plants, bearing large single white flowers during the Summer months. They are easily grown from seed, which should be sown during the Spring, and seedlings are transplanted when about two inches high. Seed is easily raised, and should be covered with fine soil about twice itself in thickness.

For those who do not want to grow them from seed, plants are usually available during the Winter months. There is also a double variety, Esther Reed, but seed of this is not available and plants must be obtained.

Shasta Daisies grow in any moderately rich loam, providing it is fairly well-drained. They should be given ample water during the Summer months, and as they are perennials and can be left in the same place for two or three years, they should be fertilised or manured every season.

When plants become old and fail to bloom freely they should be divided up and re-planted during the Winter, preferably in new positions. Space plants (or seedlings) 12-15 inches apart.

**See page 249 for Seed, and page 192 for Named Varieties of Plants.**

## SIBERIAN WALLFLOWER

### (See CHEIRANTHUS).

## SNAPDRAGON.

### (See ANTIRRHINUM).

## SNOW ON THE MOUNTAIN.

### (See EUPHORBIA).

## STATICE.

Not only do these hardy everlastings make a very decorative border plant, but they also ensure some unusual blooms for the home. Although termed annuals, plants can be cut back after the first flowering for a further flush of blooms.

These can either be grown from seed or from plants obtained during the Autumn months. Seed is always rather shy in germination but can be raised successfully with a little care.

**Requirements:** Reserve a sunny situation for these plants and choose a moderately rich, well-drained soil. While they will stand a certain amount of shade, too much is inclined to make the stems spindly and weak.

**When to Sow:** In climates similar to Sydney the sowing season extends from January to September, but in cool climates the late Autumn sowings should be dispensed with.

**How to Sow:** Seed is very large and coarse and may have some of the old flower petals still adhering to it. It is not necessary to bury the seed completely, and if a few pieces show above the surface it will not matter. The essential thing is to cover the seed as much as possible with fine soil and firm it well down with a flat piece of board. The best way is to make shallow drills about ½ inch deep into which the seed is pressed.

**Cultivation:** Seedlings are squat and no definite height can be given for the time of transplanting; however it can be said they are ready when they are large enough to handle

*Like all Stocks the Giant Perfection strain is seen at its best in a well-drained border.*

easily. They should be spaced 12 inches apart and if there is more than one row, about the same distance between them.

Spacing for the Caspia variety should be 15-18 inches apart and, for the Perezii, 24-30 inches apart. These perennial plants will flower for several years and should be cut back after each flowering. A little Bone Dust or ready-mixed fertiliser should be sprinkled around the plants in the Spring and raked in.

**Varieties for better gardens—see page 250.**

## STOCK.

If Stock had no other attraction than their fragrance, they would be worth growing for this alone, but in addition, of course, they yield the most handsome blooms, and even the "singles" are equal to many of our flowering annuals. Although they are really biennials, and can be cut back after the first year for a further flowering, it is better to make fresh sowings each year.

**Requirements:** Although Stocks grow well in older garden soils, they particularly favour an entirely fresh spot. Whatever soil is chosen, it should be one which has not grown Stocks during a previous year. Deep digging is necessary, and one of the best fertilisers to apply is Bone Dust at the rate of 2 ounces to the square yard. They favour also liberal quantities of any well decayed animal manure; a 4 to 5-inch layer of this over the surface would not be too much, but it must be well rotted. The bed in which they are grown should be well-drained as well as deeply dug. Stocks simply will not grow with "wet feet," and where the water does not drain away normally from the roots after rain the plants will be unhealthy and probably die out. Broadly speaking, they prefer rather "droughty" conditions, but should be given sufficient water to keep them moving along steadily through their growing season.

**When to Sow:** Sowings are made in the Summer—usually about January—and it is then possible to obtain flowers in mid-Winter. Later sowings—say, March and April—will produce late Winter and early Spring flowers. In cold districts, however, sowings are also made in the Spring, and by this means a succession of blooms is obtained practically the whole year round.

**How to Sow:** Care should be taken in seed raising, and here again the matter of drainage should be carefully attended to. The seed boxes illustrated on page 31 are ideal for the raising of plants, and especially effective when raising Stocks. With this type of bottom in the box the surplus water is quickly drained away and there is always sufficient aeration. Special notice should be taken of it in the preparing of the seed bed compost also mentioned in that chapter. Stocks often have difficulty in forming the necessary hair roots where the soil is stiff, and it is essential to make it as friable as possible by adding sand or soot if required. By thinning out in the seed beds, each little plant will have plenty of room to develop, and can be lifted out when ready for the open ground with a good portion of the soil around the roots.

To obtain flowers in the early Winter, it is necessary to raise the seedlings in the very hot weather, and sometimes difficulty is experienced in the matter of shading. Quite often the plants are made far too weak through over-shading, and yet many are lost through lack of it. A good general rule to follow is to cover when absolutely necessary during the heat of the day, but give the plants every opportunity to harden off by removing the covering as much as possible in the late afternoons and re-covering only when the sun is at full heat. It is essential that the seedlings be sheltered from the worst winds, and this means that some suitable construction should be erected around the seed boxes while allowing them plenty of sunlight. Usually, however, it is possible to keep them on the right side of the house or shed in the garden.

**Cultivation:** As soon as the plants are large enough to handle, they can be put out into the open bed, which should have been by now thoroughly dug and reduced to a fine tilth. Allow 18 inches between the rows with 15 inches between each plant. Occasionally, where conditions are specially suitable, it is desired to make sowings direct into the position where the plants are to flower. This is quite a good method, but the seeds must be carefully handled, otherwise the seedlings will be much too crowded, and there will be a number of surplus plants which will have to be thinned out afterwards. In this case it is a good plan to sow in groups of three seeds, 15 inches apart. If all the seeds germinate, two of the seedlings can be taken out, leaving one from each group.

The after cultivation consists of keeping the ground surface well stirred and, when the plants are well established, applications of liquid manure (see page 26) will keep the plants moving and increase the length of stem and size of flower. All spent blooms should be regularly pruned back. By this means the plants will continue to bloom over a long period.

### "DOUBLE STOCKS."

Most experienced growers of Stocks consider themselves really fortunate if they obtain 60% plants with double flowers, and it is impossible to guarantee 100% double Stock seed. However, it is not unusual for seed to be offered giving far less than 60% doubles, and it is the care of every good seedsman to supply strains that will produce a high percentage of double flowers. This is possible only by constant selection of plants from strains which consistently produce a maximum number. Many experienced gardeners find that by carefully choosing plants from the seed bed they are able to obtain a high percentage. They select those which appear to be more sturdy and lower growing, discarding the taller and more vigorous plants. This method is not infallible but has been used with some success. Our experience has been that selected strains of the Giant Perfection Stock consistently give a high percentage of doubles.

**Varieties culled from the World's best—see page 250.**

## STRAW FLOWER.

### (See HELICHRYSUM).

## STURT'S DESERT PEA.

### (CLIANTHUS DAMPIERI).

This is perhaps one of the brightest of Australian Native flowers and has, in recent years become tremendously popular with gardeners. The petals are formed in two large wings of deep crimson and there is a contrasting jet black centre.

In their natural state these plants thrive under fiercely hot sun and in poor sandy soil. They withstand considerable drought and, once established, are a very easily grown plant. However, they resent any disturbance to the root system, but contrary to the general belief, they are not impossible to transplant.

Seed is sown during the Spring months and on to early Summer.

To assist germination, the skin of the seed can be nicked with a sharp knife, taking care not to damage the "eye," which is vital to germination. Seed is covered with about ¼ inch soil and kept moist. Germination may be slow, and if the weather is cool the soil should be covered with a sheet of glass, or the seed box kept in a glass covered frame.

Seeds can either be sown where the plants are to grow or in seed boxes for transplanting later. If transplanted, as much soil as possible must be lifted with the roots. Transplant to a warm, well drained position, giving water until the seedlings are thoroughly established. After this, very little care is necessary and, apart from keeping down weeds, cultivation should be avoided as much as possible. These plants make excellent window-box specimens, and can also be grown in pots.

**Our recommendation is on page 250.**

*Picture these "pompom" blooms of Sungold Sunflower as a beautiful golden yellow.*

## SUNFLOWER.

### (HELIANTHUS).

So easily grown are these plants that it seems hardly necessary to describe their cultivation. It is worth mentioning, however, that some of the Dwarf varieties, including Sungold, are most decorative and equally as showy as many of the more difficult annuals.

**Requirements:** Choose a warm, sunny situation for Sunflower and avoid soils that have any tendency to waterlogging. They grow well in a variety of soils, from light sand to heavy clay, and while they do quite well in poor ground, better blooms are obtained if a generous amount of rotted manure is dug in.

**When to Sow:** Seed is sown during the Spring months and up to early Summer.

**How to Sow:** Quite good results are obtained if seeds are scattered over the soil and lightly raked in, but where uniform planting is desired it is better to make rows 20 inches apart for Dwarf varieties and 2 feet apart for Tall types. They can also be sown in seed beds and afterwards transplanted.

**Cultivation:** Very little care is necessary apart from watering during dry weather and keeping soil weed-free. Blooms required for the house should not be allowed to get old before picking.

**Varieties our Customers grow— see page 250.**

## STREPTOCARPUS.

A much admired plant for either the bush or glass-house. Can best be grown in pots and flowering specimens can be kept for indoor decoration.

**Requirements:** A well prepared soil, such as equal parts sand, rotted manure and loam. In cold climates a glass-house is necessary and in mild climates a bush-house is suitable, providing there is protection from cold draughts.

**When to Sow:** In Autumn or the early Spring months.

**How to Sow:** See notes on Tuberous Begonias.

**Cultivation:** See Tuberous Begonias.

## SWAN RIVER DAISY.

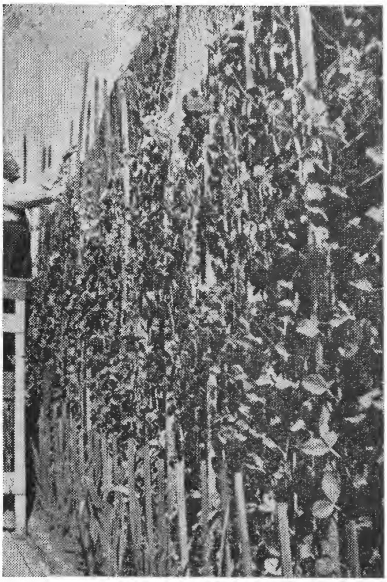
(See **BRACHYCOME**).

## SWEET PEAS.

It is little wonder that there are more Sweet Peas grown each season than any other flowering annual. Our requirements each year are measured in tons, which is an indication of the popularity of the Australian Early Flowering Sweet Pea. At one time it was very difficult to grow good Sweet Peas in our warm district, but since the introduction of the Australian Early Flowering Spencer strain it has become one of the more easily grown annuals.

Home gardeners naturally prefer to grow their Sweet Peas in mixture so that, in their limited garden space, they can have as wide a range of colour as possible. At the same time, many keen enthusiasts grow the colours separately and make their choice from the Named varieties available. The numerous varieties range from pale to deep pinks, through various shades of light and deep red to blues, purples and white.

**Requirements:** For really successful growth, Sweet Peas should obtain a liberal share of sunlight. It is not always convenient to plant them in the most sunny position in the garden, but it should be remembered they cannot give of their best in shady situations.



*These Sweet Peas, grown for exhibition without deep drainage, grew over 8 feet high.*

Where possible, the rows should run from north to south, so that the sun has every opportunity of reaching both sides of the plants. Unless the position for the Sweet Peas is exceedingly well drained and capable of shedding the surplus water after rain at a depth of at least 2 feet, there is no advantage in deep trenching; in fact, it can prove definitely harmful. For general garden display, and even for exhibition work, a trench 12 inches deep will prove quite sufficient. This depth can be increased not by deeper digging but by building up the sides of the trench when full with extra soil and suitable manure to a height of, say, 6 inches above the original soil level.

Sweet Peas are a leguminous crop and, if given too much nitrogenous manure, will produce rank, over-soft foliage at the expense of the flowers. On the other hand, they are very partial to lime, a liberal dressing of which (1 lb. to 2 square yards) can be dug into the soil 4 weeks before using any manure. Any animal manure used should be very well rotted and thoroughly incorporated with the soil. If the soil is of a good loamy texture and appears to be well endowed with humus, it might be advisable to use a suitable plant food instead of animal manure. Shirley's No. 5 is recommended for Sweet Peas. It should be used as directed on the packet purchased. A mixture of two-thirds Superphosphate and one-third Bone Dust is also effective Apply either of these at about 2 ounces per square yard.

Some of the finest material for Sweet Peas will come from the compost heap, as described on page 19. If the trench is prepared some weeks before planting time, all sorts of rubbish likely to rot quickly can be thrown into it and covered with a layer of soil, which should be regularly moistened.

**When to Sow:** In mild climates (similar to Sydney) sowings are usually commenced in mid-Summer and continued through the Autumn to early Winter. Early Autumn and Spring sowings only are recommended in cold districts. Although the plants are not susceptible to frost, the flower buds are easily damaged by it. Sowings should therefore be planned so that the flowering season will not occur when the worst frosts are likely to be experienced.

**How to Sow:** Before actually sowing the seed, it is best to arrange for the poles and netting so that the bed will not be unduly trodden on and disturbed after the plants are grown. These poles should be about 6 feet high and wire netting is stretched between them. A narrow drill is made 2 to 3 inches deep and the seeds sown along the bottom of it 3 inches apart. They are then covered with some good compost or rotted manure. The germination should commence on the seventh day and be completed in 14 days. The soil should be kept moist all this time.

**Cultivation:** When the young plants are about 2 inches high they must be given some twigs on which to climb and to assist them to reach the netting. Once the plants are 12 inches high laterals will quickly appear; it is better to keep these cut off and tie the plants to the netting. In dry weather watering is advisable once every week and weak liquid manure every 10 days while the plants are in full bloom. If, however, an unduly large number of laterals is produced in the plants, the liquid manure should be reduced. For show blooms, only a few stems are allowed on each plant and laterals are kept severely cut back.

As a general preventative against fungus, regular sprayings of Bordeaux Mixture will keep the plants free. Nevertheless, even regular attention in the matter of spraying cannot keep the plants free from fungus diseases in badly drained soil, which should never be used for Sweet Peas.

**Varieties—tried and tested under Australian conditions—see page 251.**

## SWEET SULTAN.

### (See CENTAUREA).

## SWEET WILLIAM.

### (DIANTHUS BARBATUS).

A free-flowering perennial which, although grown mostly in cool districts, is also suited to temperate areas.

Sowings of this variety are commenced in January, and continued until May. The cultivation is similar to that for Carnations, for which see page 93.

**A good Home Garden variety—see page 251.**

## SWEET WIVELSFIELD.

A hardy plant closely related to Sweet William, but withstanding much more difficult conditions, especially in warm climates.

Sowings are commenced in Summer and continued until late Autumn.

Cultivation is the same as for Carnation.

**Make sure of a good variety—see page 251.**

## TELOPEA SPECIOSISSIMA.

### (See WARATAH).

## THALICTRUM.

### (LAVENDER SHOWER).

A Summer-flowering herbaceous perennial well worth a place in the permanent border.

**Requirements:** Fairly rich soil and partially shaded situation.

**When to Sow:** In Autumn or early Spring. In cool climates, Spring only

**How to Sow:** In well prepared seed boxes or beds, covering seed with soil equal to about twice its own thickness. This should be firmed well and kept moist.

*Sweet Wivelsfield—hardy, drought-resisting, colourful and attractive.*

**Cultivation:** Transplant seedlings when large enough to handle, spacing them about 18 inches apart. Being an herbaceous perennial, plants die down at the start of Winter and commence new growth in the Spring when they should be mulched with rotted manure and given shallow cultivation.

**Our recommendation is on page 244.**

## TITHONIA.

One of the tallest growing annuals and plants often reach a height of over 6 feet.

Sowings are made during Spring and early Summer months. Some support, such as trellis work or long stakes is necessary for these plants, otherwise cultivation is the same as for Sunflower.

**Variety for the Home Garden—see page 251.**

## TORENIA.

A delightful blue edging or border plant for Summer display.

**Requirements:** This plant grows readily in any average garden loam but poor soils should have the addition of some rotted manure; choose a sunny, well-drained position. In massed garden displays the colours are seen to great advantage with a background of yellow, red or pink flowering annuals.

**When to Sow:** Seeds are sown during the Spring and Summer months.

**How to Sow:** The usual method is to grow the seedlings in a prepared seed bed, although seeds can also be sown direct where the plants are to flower. Cover seed with about ¼ inch fine soil, press this down firmly and keep moist. If very crowded, seedlings should be thinned out in the seed bed, or pricked out when attaining their second leaf, see page 31.

**Cultivation:** When about 2 inches high, seedlings can be transplanted, spacing them 8 inches apart and, if more than one row, 10 inches between rows. Weed growth should be killed when it first appears by lightly cultivating the surface. Plants will bloom even more abundantly if liquid manure is given regularly after the buds show.

**The Home Gardener's choice—see page 251.**

## URSINIA.

A Summer-flowering annual well suited to places where conditions are hot and dry.

**Requirements:** A warm, sunny position; practically all garden loams are suitable.

**When to Sow:** During Spring and early Summer.

**How to Sow:** Seed can be sown direct where the plants are to flower or in prepared seed beds. Cover lightly with about ⅛ inch fine soil, press down firmly and keep moist.

**Cultivation:** Thin out or transplant seedlings 6-8 inches apart. Give water until they are well established and they will then thrive with very little other attention, apart from keeping the soil weed-free. To prolong the period of flowering, remove faded blooms regularly.

**A good Home Garden variety—see page 252.**

## VENIDIUM.

Another remarkably colourful annual for hot, dry places, being an introduction from South Africa.

**Requirements:** A warm and very sunny situation. Any average garden loam is suitable and no fresh manures should be used.

**When to Sow:** During the Autumn and in cold climates, Spring.

**How to Sow:** Cover seed lightly to a depth equal to twice the thickness of the seed, using fine soil, which should be well firmed down. Seed can be sown direct where the plants are to flower or first in seed beds for transplanting later. Seed is inclined to be slow and irregular in germination and might take 3-4 weeks.

**Cultivation:** When large enough, thin out or space seedlings 12 inches apart. Give sufficient water until plants are established, after which they will thrive in fairly dry conditions.

**The Home Gardener's favourite variety—see page 252.**

## VERBENA.

This is one of our hardiest bedding plants and the brilliance of its colours is surpassed in few other flowers. Plants continue to flower for many months and if carefully looked after will last 2-3 years.

**Requirements:** They favour any ordinary garden loam. If it has previously grown other flowers successfully, you can be sure that it will suit Verbenas. Of course, if it has been used consistently without the addition of manures, it can be given a light dressing—a layer 2 to 3 inches thick of some rotted cow manure would be ideal.

**When to Sow:** The seed is sown during the Autumn, but in cold districts an additional Spring sowing can be made.

**How to Sow:** The slowness of the seed to germinate often discourages seed raisers, and they are perhaps inclined to neglect the soil after 2 or 3 weeks. This, however, is the most important time, and just as much care should be given to watering and keeping the soil moist as in the earlier stages.

**Cultivation:** With a little care in keeping spent blooms snipped off the plants will continue to bloom for many months. Because the seed is rather slow germinating, and may take up to 28 days, some garden enthusiasts are rather reluctant to grow Verbena, thinking that this means the plants themselves must be difficult, but such is not the case. Once established they are most easily grown.

As soon as the plants are large enough for transplanting, they can be spaced in their new position about 18 inches apart each way. Their creeping habit quickly enables them to cover the ground. They do not require over-feeding and, providing the soil is kept cultivated and an occasional watering given during dry times, they require very little other care.

*Violas have a charm all their own.*

**Selected variety for the Home Gardener—see page 252.**

## VIOLA.

The cultivation of Viola is identical with that of Pansy, to which it is very closely related.

As already indicated, cultivation is the same as for Pansies, but with Violas, closer planting, say 4-6 inches apart, is advised.

**Start with suitable Home Garden varieties—see page 252.**

## VISCARIA.

During the Summer months these warmth-loving annuals yield an incredible number of their dainty blooms.

Viscaria grow to perfection in warm, sunny places, and are ideal for both bedding and rockery cultivation. They are not over particular as to soil, and do well in both light and heavy loams. Very poor soils should have the addition of some rotted manure dug in to a depth of about 4 inches.

Seeds can either be sown in seed boxes and the seedlings afterwards transplanted, or direct where the plants are to flower. Whether thinned out or transplanted, final spacing should be about 6 inches apart. Spring and Summer are the sowing times and these plants will not resist frost. When cultivating surface soil, avoid disturbing the shallow root system of these plants.

**The variety our Customers grow—see page 252.**

## VIRGINIAN STOCK.

### (FRENCH FORGET-ME-NOT).

A hardy and remarkably showy annual that blooms quickly after sowing.

Seeds are sown during the Autumn months and even well into Winter.

They germinate very freely if scattered over the surface of the soil and covered with some fine loam or leaf mould. They can also be sown in shallow drills, making neat rows for edging or massed display. Almost any soil suits them, and cultivation is similar to Viscaria.

**For the best Home Garden variety see page 252.**

## WALLFLOWER.

Judging from the enquiries received from home gardeners, there is undoubtedly an impression that Wallflower is a rather delicate plant. No doubt this is a legacy from those days when only the Late Flowering strains, unsuitable for our warm climate, were available. The Early Flowering Wallflower, however, is one of our hardiest and most easily grown plants, yielding richly coloured and fragrant blooms.

**Requirements:** These plants grow in most soils, providing they are moderately rich, and well drained. Choose a sunny position, preferably sheltered from strong winds. Whilst they give excellent results in hastily prepared ground, they will repay for any care exercised in preparing the soil. Dig the ground over some weeks before planting. A good time to do this is when seeds are sown, which gives the soil approximately 6 weeks to fallow. Leave it in its rough state, giving a dressing of lime up to 1 lb. per square yard. About a week before planting, dig it over again, breaking it down to fairly fine particles, adding a 3-inch layer of rotted manure, which is dug in. Ready-mixed No. 12 Fertiliser, at the rate of 1 ounce to the square yard, will provide the necessary plant food for these plants and it is especially valuable if compost is used instead of manure.

*The modern strains of Wallflower such as Russet Shades are Winter-flowering in temperate climates.*

**When to Sow:** Seed is sown during the late Summer, Autumn and early Winter months. The late Summer sowings will, in temperate districts, ensure Winter blooms, while the Autumn and Winter-sown plants will bloom in the early Spring.

**How to Sow:** Prepare seed boxes or beds as described in Chapter 5, marking out shallow drills about 2 inches apart. Sow the seeds along these, covering with about ¼ inch of soil, and firm this down thoroughly with a piece of board. Water lightly with a fine sprinkler, and if seedlings are too crowded, thin them out, or transfer to another box or bed, when about ½ inch high.

**Cultivation:** Seedlings are ready for final transplanting when about 3 inches high and should be spaced 10-12 inches apart. Whilst these plants withstand quite an amount of dry weather, they will respond to generous watering. Keep the soil surface well stirred, but avoid damaging the surface roots. Give liquid manure at intervals of about 10 days, when they first show signs of buds.

**Varieties—a selection for your choice—see page 252.**

## WARATAH.

### (TELOPEA SPECIOSISSIMA).

Widely known and admired as the national flower of N.S.W. When grown, specimens attain a height of up to 10 feet and are seen mainly in the coastal areas of N.S.W. or inland only as far as the Blue Mountain range. It would, however, grow in other districts which have similar hot Summers and fairly cold Winters.

**Requirements:** Plants thrive in a variety of soils but seem to prefer a sandy loam. Heavy soils can have the addition of some pure sand. Artificial fertilisers and fresh animal manures should be avoided but old rotted cow manure can be used.

**When to Sow:** Sow during the warmer months of the year, usually between September and December.

**How to Sow:** Make a seed bed or box, preferably of bush soil, including well rotted leaf mould and, if heavy, one-third sand. Cover seed with about ¾ inch of the above mixture and, after covering, press down firmly with a flat piece of board. If soil is kept moist, seed usually germinates in 3-4 weeks.

**Cultivation:** When seedlings are 2-3 inches high, transplant into positions where they are to grow or into pots or tins for later transplanting. Choose a position sheltered from strong winds and with ample sunlight.

A leaflet on the full cultivation of Waratah is free on request.

## ZINNIA.

Vast improvements have been made in this flower in the last 10-20 years, and to-day it ranks among the six most popular Summer-flowering annuals.

**Requirements:** They will grow in almost any good garden loam which has been deeply dug to a depth of 8 to 9 inches. The soil can be improved by a liberal dressing of some rotted manure. These plants favour a sunny, open situation but sheltered, if possible, from the worst winds. This especially applies to the Tall types, which are liable to be broken in exposed positions.

**When to Sow:** For successful germination it is essential that the ground be sufficiently warm to induce the seeds to grow; that is why so many of the very early, cold weather sowings are disappointing. If, however, it is desired to sow in the colder part of the early Spring or late Winter, the seed box should be kept in some warm spot, such as on a verandah or glass frame, or perhaps a hot-bed. The plants, however, are very susceptible to frost and cannot be put out into the open ground until all danger is over.

**How to Sow:** The seed bed or box should be made up of a good compost as described in the chapter on seed raising on page 30. The covering for the seed should be about ¼ inch deep and the soil kept moist until the germination is complete. In the warmer Spring weather and later on into the Summer, sowings are sometimes made in the open ground, and this ensures a much shorter period from the time of sowing to blooming, as the plants are not checked by transplanting. For "outside" sowings cover the seed with about ½ inch of soil or compost.

*Californian Giants Zinnias are gaining more admirers every season. They seem to lend themselves more readily to indoor decoration than the Dahlia-flowered type.*

**Cultivation:** When the plants have been grown in a seed bed or box they are ready for moving into their new position when about 3 inches high. The Tall Flowered types are spaced 18 inches apart in rows 20 inches between each. The Lilliput and other dwarf types are spaced 10 inches between each plant in rows 12 inches apart.

The after cultivation of the Zinnias consists of keeping the ground well stirred and in the very hottest weather, sheltering the roots with a good thick mulch. They will stand quite a fair amount of drought, but immediately respond to regular watering and occasional applications of liquid manure.

Zinnias are not usually subject to disease, but sometimes contract a form of mildew on the leaves. Regular sprayings with Bordeaux Mixture will help to prevent this.

**Varieties—our choice for Home Garden—see pages 252-253.**

## FLOWERING VINES AND CREEPERS.

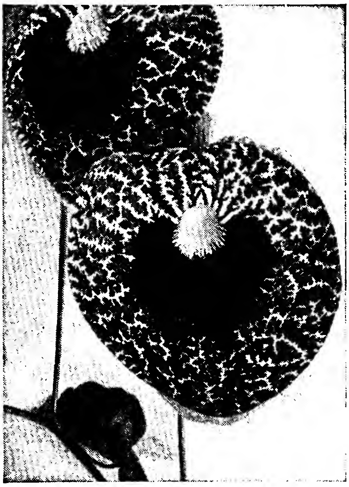
**(Usually grown from seed).**

Climbing plants could well be more used in Australian gardens. How often do we see an otherwise colourful border spoiled by the background of a rather dilapidated fence or out buildings protruding into garden plans. And how easy it is to alter the whole appearance by growing a few climbing plants. Raising them from seed is both economical and interesting.

The variety to be grown should be chosen with a little care, for instance it may be that the effect is wanted only during the Summer months and in this case a quick-growing annual climber, such as Mina Lobata, could be chosen, or an herbaceous perennial, such as Antigonon Leptopus, which dies down during the Winter, would be ideal.

Seeds of all varieties can be raised in seed beds or boxes, as described in Chapter 5. They can also be sown where the plants are required to flower. Cover the seed with fine soil equal to about twice its own thickness and keep moist. If more than one plant is grown, space them about 4 feet apart. Most varieties require a fairly sunny situation and a moderately rich soil.

**Varieties—popular because they have proved best—see page 253.**



*Dutchman's Pipe (Aristolochia Elegans) is an unusual flowering creeper.*

*Morning Glory (Ipomoea) are rapid growing annual climbers ideal for quickly covering fences or providing shade during the Summer months. This is the exquisite Heavenly Blue variety.*

## CHAPTER 8.

# FLOWERING BULBS.

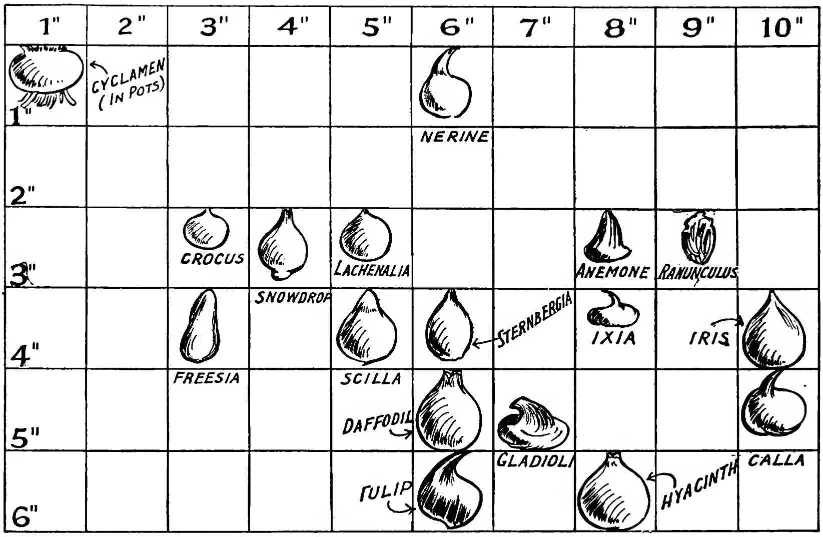
**"A bulb" is a term generally applied to any corm, tuber, or even rhizome. Strictly classified these would appear under separate headings, but the Home Gardener need not be greatly bothered by these finer distinction and in this chapter the word bulb is used in its widest meaning. To make the matter a little clearer, however, some typical examples are given.**

**A BULB** is a tuberous growth formed with layers of fleshy scales, as found in a Daffodil, Hyacinth or Snowflake. A true bulb carries the future flower in miniature protected by the fleshy scales. To grow this flower warmth and moisture are necessary and any food absorbed is used to form the flower for the following year. Hence the importance of tending bulbs even after they have finished flowering. Bulbs increase by the division of the scales from the parents, thereby forming a clump of new growth around the original bulb.

**CORMS.**—The best example of a corm is the Gladioli, consisting of solid flesh. During the growth of the plant a new corm is formed above the old, which shrivels and eventually disappears. Increases are obtained from the tiny bulblets around the root base and these may take two years to grow into flowering bulbs.

**A TUBER** consists of a thickened shoot and a good example is the Potato. Of the ornamentals the tuberous Begonia, Arum Lily and Cyclamen are good examples. Dahlias (not dealt with in this chapter) are also classified as tubers, but instead of the "eyes" of the Potato they produce their new growth from crown buds which appear at the seat of the previous year's flower stems.

**A RHIZOME** is also a thickened shoot but grows almost horizontally, such as the Lily of the Valley and larger specimens in the Flag Iris and Solomon's Seal. Mostly new growth develops downwards instead of, as in the case of a corm, upwards.



BULB PLANTING CHART.—This indicates how the more widely-grown bulbs should be planted, i.e., the depth and distance apart. For example: Lachenalias should be 5 inches apart (reading from the left) and the top of the bulb 2 inches below the surface (reading from the top of the chart). The only exception is the Cyclamen, usually grown in pots (one bulb to a pot) and not in garden beds.

## WHEN AND WHERE THEY GROW.

A garden planted with a good variety of bulbs is sure of being splashed with at least some colour at almost any time of the year. Of the Spring flowering bulbs the first to show up are the Jonquils, followed by the rather more elegant members of the family, the Daffodils. In cold climates where they can be grown the Snowdrops and Crocuses will appear even before these. Before the beauty of the Daffodils has faded the buds of the Anemones and Ranunculus begin to show colour. And already the Hyacinths, Freesias, Sparaxis, Tritonias and Watsonias are showing full growth and might even be flowering. These carry us on with colour well into the warmer weather and the torch is then taken up by the Belladonnas, many of the Liliums, as well as Calla Lilies, Hippeastrums, Gladioli, etc. Many of these carry their flowers right into January, but after this, except for the Autumn flowering Nerines, there is necessarily a lull, and preparation can then be made for next season's colour displays.

Most of the bulbs mentioned here will grow in the colder climates as well as the coastal areas. Nevertheless, the coastal districts of Sydney and north are rather too warm for Tulips and such bulbs, although Hyacinths have been grown with some success. The beauty of these flowers, however, can be enjoyed in warm districts by growing them in fibre, as described later. When grown in bowls or pots they make delightful indoor plants.

## SOIL REQUIREMENTS.

The soil requirements of bulbs are in many cases similar, although in some instances they have their special dislikes. They all, however, share an aversion to fresh manures and at no time should these be used. Generally speaking, a light, well-drained, gritty loam is the best for most bulbous plants. This does not mean that they cannot be grown in heavy soils, where by planting the bulb in a pocket of sand such troubles as rotting are avoided. They do not like poor soil, neither do they favour newly-enriched ground. A happy medium is a bed that has been well manured the previous year for some heavy feeding crop. Nevertheless, providing that the soil is not actually poor, it is remarkable how easily they thrive in practically any garden.

Very heavy soils, specially those of a wet clayey nature, can be corrected by trenching deeply and incorporating into the top six inches or so a quantity of sand and horse manure. Special attention should be paid to the notes in this book on humus and the necessity for incorporating it with the soil. It is advisable to pay attention to the discussion on drainage—and whilst it may not be necessary to go to the length of laying pipes these notes will give some idea as to the importance of well-drained soil. In other words there are practically no bulbs that can survive in soil that is constantly wet, soggy and cold.

Opinion is divided as to the use of lime and undoubtedly Japanese Iris and Liliums are adverse to it. Its addition does no harm where other bulbs are to be grown and will do a lot of good in breaking up the soil and releasing valuable locked-up elements. For preference lime should be applied several weeks before planting. The rate of application is about 1 lb. per square yard, according to the soil.

## SITUATION.

It will often be found that Daffodils, Hyacinths and similar bulbs thrive in a position protected by the partial shade of deciduous trees. Here they enjoy the shade of the new leaves in the late Spring and early Summer, and are able to take full advantage of the sunshine when the trees lose their leaves in the Winter. Any advantage gained, however, would be lost if bulbs were planted too near the roots of the trees where the soil is liable to be poor. Generally speaking the majority of bulbs like an open sunny situation and many dislike shade.

## DEPTH TO PLANT.

With a few exceptions, bulbs, corms or tubers can be planted to a depth equal to twice their diameter, measuring from the top of the bulb. For example, a Daffodil bulb two inches in diameter would be four

*Tulips are admirably suited for our cooler districts. See page* 156.

inches under the surface if the measuring rule is just touching the top of the bulb. The importance of planting a bulb with sand in heavy soils has already been emphasised and the usual practice is to put a padding of about an inch of sand under the bulb and cover it with about the same amount on top; the soil is then carefully replaced.

Whilst some bulbs, such as Freesias, may be left in the ground during the Summer, this is not a good practice, because the heat of the soil during those months will very possibly "roast" them. Tender bulbs, such as Hyacinths, may be lifted before the foliage loses its greenness. They can be allowed to ripen off gradually stored in a cool dry place or in a box of dry sand. Always permit the leaves to wither. With a good mulch of leaf mould or similar material to keep the ground cool during the Summer, Daffodils, Sparaxis, Ixias and Tritonias may be left in for two or three seasons, temperatures permitting.

Divisions from the bulbs should fall away freely and under no circumstances be wrenched from the parent bulb. These "chips" can then be planted by themselves until they reach the flowering size.

## PLANTING IN GRASSLAND.

In suitable positions, such as areas of grass which are not constantly walked on, the naturalising of bulbs among the grass is a very beautiful way of improving the landscape It is no use economising or the effect will be spoilt; large quantities of bulbs are necessary. An attempt should be made to plant the bulbs as if they had grown naturally—this is done by distributing them irregularly over the area. If the grass is already established it will not be easy to plant them in the existing soil, in which case a surface mulch of about one inch will be necessary to establish them.

In cold climates the following bulbs will naturalise readily:—Chionodoxa, Crocus, Muscari, Narcissus, Scillas, Snowflakes, Sternbergia and Tulips. For coastal and warmer parts the following may be planted:—Alliums, Freesias, Sparaxis, Muscari, Narcissus, Snowflakes and Triteleias.

## POT CULTURE.

All the stronger growing Daffodils, Hyacinths, Tulips and Freesias, make splendid pot plants. For the warmer parts of Australia we strongly recommend this method. Only selected bulbs should be planted. Use from three to twelve bulbs, according to variety, for a four-and-a-half or six-inch pot, three or four Tulips or Hyacinths are sufficient for a five-inch pot. Drain the pots well with three or four broken crocks and use good, rich, fibrous, loamy soil, mixed with a little sharp sand, but be careful not to use any fresh manure. The pots should be carefully washed and dried before using. The bulbs should be planted so that the crowns are about an inch below the surface.

After planting, water well and place the pots in a cool, shady position, where they may remain till the tops have begun to show above the soil; then move gradually into a sunny situation; this induces good root growth. If the pots are placed on a good hard bottom of asphalt or ashes, they will be kept free of worms. When in full growth, keep them well watered and they will give a magnificent show of blooms in the early Spring, when flowers are scarce.

Well-grown pots of Daffodils or other bulbs are always admired, and when used for table decoration are extremely handsome, and will last ten to fourteen days in bloom.

## BULBS IN BOWLS.

### (USING FIBRE).

Spring-flowering bulbs such as Daffodils, Freesias, Hyacinths, Tulips and Lachenalia may be grown in fancy bowls for indoor decoration, and this mode of culture will be found very fascinating and interesting.

Most bowls are not provided with a drainage hole, and it is necessary to use specially prepared bulb fibre, as ordinary soil is apt to "sour." The shape of the bowl is not important, but one with a depth of three or four inches is preferred. The bulbs may be planted during the months of February to May, inclusive, and as different varieties flower at different periods, it is advisable to plant only one variety so as to obtain the best display. This particularly applies to Daffodils, and mixed varieties are therefore not recommended.

The bowls should be filled with fibre to within ½ inch of the rim, and the bulbs planted with their tips just level with the surface of the fibre, which should be pressed firmly and evenly around them. After a good watering, allow the bowl to stand for a few minutes and any surplus moisture can be drained off by tilting the bowl on its side. It is advisable to keep the fibre damp, but not too moist. Experience has proved that best results are obtained by standing the bowl in a position where it will receive plenty of light and air. If grown on a window sill or a verandah, the bulbs will have a tendency to grow towards the light, and so as to keep the growth upright the bowl should be turned round occasionally. After flowering, the bulbs should be removed from the bowl, and planted in a sheltered position in the open where they will eventually die down. As it is not possible to grow the same bulbs in fibre successfully the following season, they should be left in the garden.

**Many of the more widely known bulbs are discussed on the following pages, and these should be read in conjunction with the foregoing notes. See also "Other Bulbs Well Worth Growing," pages 157, 172, 182.**

# Cultivation Notes

## AGAPANTHUS (African Lily).

Very hardy bulbous plants, quickly forming large clumps and throwing up numerous heads of bloom, which are borne on long stems in large clusters. They flower about Christmas time. Both the blue and white varieties can be planted at almost any season. They are very handsome border plants and will grow under the hardest conditions, flowering well even under trees. Unlike most large bulbs these should not be planted too deeply and it is usually sufficient to just cover the bulbs. They quickly cover the ground in which they are planted and about fifteen inches should be allowed between each bulb. Although they can be increased by dividing the clumps it is advisable to leave them in the one position as long as possible.

## ALSTROEMERIA.
### (Peruvian Lily)

In comparison to the ease with which these bulbs are grown the flowers are remarkably beautiful. The unusual spotted and "streaky" markings are further accentuated by the curiously twisted petals. Deep digging is necessary but they grow in any good garden loam. Plant the bulbs six inches deep and about ten inches apart, leaving them undisturbed for a few years.

Weekly applications of liquid manure will result in larger and more deeply coloured flowers. Plant February to July and they will flower for some months from September onwards.

## AMARYLLIS.
### (Belladonna Lily)

The sweetly-scented Belladonna Lilies, carried on their stately stems, are a feature of the Summer. The rose-coloured trumpet-shaped florets are grouped in "fours and fives" at the apex of each stem. They appear after the foliage has died down. The planting season extends from October to March, but it is better to have these bulbs in not later than December. They are hardy and thrive to perfection in a sunny situation. Plant with the top of the bulb just above the surface of the soil.

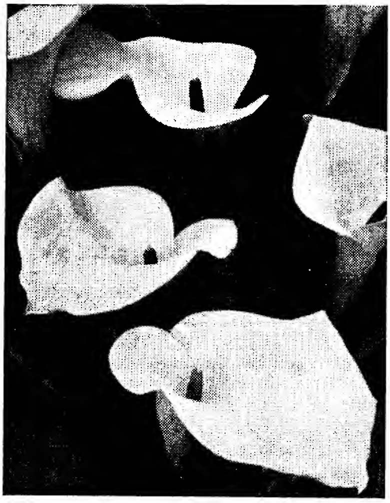
## ANEMONES AND RANUNCULUS.

Although quite distinct plants, these require similar treatment and are both used as dwarf bedding plants, flowering at the same time. Both Anemones and Ranunculus may be raised from seed (see Chapter 5); they may also be bought as bulbs ready for planting in February, March or April. It is a good plan to start these bulbs in shallow boxes, filled with light, sandy, fibrous soil, and placed in a cool, shady position. They should be kept moist, but not too wet, or they will be liable to rot. Plant the bulbs 6 inches apart and 1½ to 2 inches below the surface, the Ranunculus with the claws down, and the Anemones with the flat side of the crown uppermost. Under these conditions the bulbs will soon start into growth, after which they may be planted out in the open borders, choosing a cloudy, moist day if possible, or, if the weather is unfavourable, water the bed well and shade with a few bushes till the plants are established. Neither Anemones nor Ranunculus grow well under droughty conditions, and during the growing season they must, it necessary, be regularly sprayed and well watered at the roots. They like a light, rich soil, but fresh manure should not be used. After flowering in Spring they will gradually mature their growth and die down in November or December, when they may be dug up and kept in a dry, cool store till the next planting season.

Experienced gardeners have long realised that the finest results are obtained from first-season bulbs and therefore they never insist on being supplied with large specimens. Though a little expensive it is more satisfactory to purchase fresh bulbs each season or raise new batches from seed. See pages 172, 238, 249.

## BEGONIAS.
### (Tuberous Rooted)

The Begonia is undoubtedly one of the chief aristocrats of the bulb garden. The flowers attain a fineness not equalled by many other plants. The culture of these from seed is discussed on page 87. There are many forms, such as Single, Double,



*The well-known Arum Lily (Calla Ethiopica) likes a really damp spot.*

*These are the Miniature Callas with blooms no more than about 3 inches long. They thrive in well-drained positions.*

Crested and Camellia-flowered, all of which are obtainable as tubers from August to November each year.

They are suitable for either bush houses or verandahs and in milder climates, such as Sydney, they can be planted in sheltered, shaded beds outdoors.

Bulbs carried over from the previous season should be stored in a shallow tray or box in a well-aired place free from frost until about a month before planting time. During September some damp fibrous material can be distributed around the bulbs and a damp bag laid over the tray. Soon the tubers will shoot and they can then be potted into a four-inch pot. Treatment is then as recommended for plants grown from seed.

## BRUNSVIGIA.

These sweetly-scented Autumn flowering bulbs thrive in a warm, sunny situation. The flower stalks, appearing before the leaves, attain a length of up to three feet and each carries a wealth of bloom. One flower head will often carry as many as 24 to 30 different separate florets and they can be expected from February to April.

Plant with the top of the bulb just peeping above the surface of the soil. Avoid disturbing them once they are established as they may take two or more seasons before again flowering.

## CALADIUMS.

These gorgeous foliage plants can easily be grown in a bush or shade house in Queensland, and in cooler climates thrive admirably in a greenhouse. They are dormant all the Winter, and should be kept in a dry temperature of not less than 55 to 60 degrees. The tubers are usually procurable in October and November. They should be potted up in a compost of turfy loam, leaf mould, sharp sand and well rotted manure, with plenty of drainage, and stood in a warm, light situation, shaded only from the direct rays of the sun. Water sparingly at first, but as soon as the leaves expand, increase the supply When the pots are filled with roots apply weak liquid manure every other time of watering.

## CALLAS.

Besides the ordinary white-flowered variety (Ethiopica or Lily of the Nile) which grows so abundantly in favourably moist surroundings, there is a choice yellow-flowered variety, with handsome spotted dark green foliage, known as Calla Elliottiana, and many other attractive varieties, including miniature white; Pentlandi, with rich yellow blooms and black spot in throat; Rehmanni, pink; Sanctum, black, and others. They all like a moist situation and rich soil. Plant April to August. Always dig the bulbs when the foliage has withered; left in the ground they will rot. When planting make sure that the bulbs are 3 to 4 inches deep, placing sand both below and on top of the bulb.

## CYCLAMEN.

See page 101 on raising Cyclamen from seed, the requirements of which are identical. For bulbs—page 172.

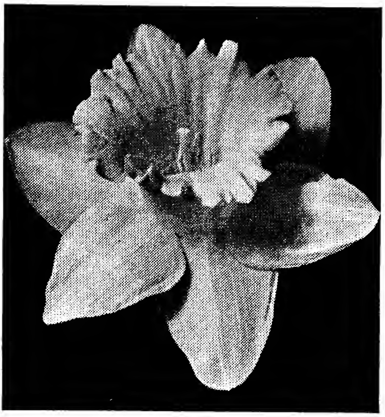
## DAFFODILS.

### (Narcissus)

Daffodils take the pride of place amongst the Spring-flowering bulbs. They do not succeed well in climates warmer than Sydney, but in the southern and cooler parts of the Commonwealth they grow to perfection, and where they do not thrive well in the open they can usually be most successfully cultivated as pot plants.

For convenience Daffodils can be classified into four main groups as follows:—

**Trumpet** includes all varieties having a trumpet or crown as long as or longer than the perianth (the outer row of petals surrounding the trumpet).



*Trumpet Daffodils, such as King Alfred, grow and thrive in warmer districts, similar to Sydney, as well as cold climates*

**Incomparabilis:** In this type the cup or crown is not more than one-third the length of the perianth segments. With this group also we can include Barri Narcissus, embracing those varieties that have yellow or white perianths and yellow or red stained cups. Additionally the Leedsii Daffodils can also be included. These having white or sulphur perianths in cups of white, cream, apricot or lemon.

**Poeticus:** These are also known as Pheasant's Eye type, but are not now very widely grown, having given way to the Poetaz Hybrids. These are a bunch-flowered type, with three to six flowers on a stem and on each individual floret.

**Jonquilla:** Popularly called Jonquils and all are sweetly scented. There are two sections, namely those carrying a single flower to a stem, and the bunch flowered type (Polyanthus Narcissus), with several flowers to a stem.

**N.B.:** Owing to hybridising and the inter-crossing of many different types of Daffodils or Narcissus it is impossible to give exact classifications, but the above will serve as a rough guide.

## SOIL.

A good, deep, friable, well-drained soil, such as good Potato land, is the most satisfactory all round, but good Daffodils can be grown in quite a wide range of soils. Thorough preparation is essential for choice blooms, and each soil has to be treated according to its character. Sandy soils and others lacking humus should be heavily green-manured prior to planting, preferably with some legume such as tick beans or cow peas in Winter or Spring before planting, digging the green crop in during the latter part of November. Heavy soils should be worked to a good depth in the Springtime before they get too hard, being cultivated several times during the hot, dry weather. Poor land is better given a liberal dressing of animal manure (not poultry), and cropped with peas. Lime or Dolomite can be incorporated in the soil to great advantage before planting.

## SITE.

An open, sunny situation suits them best. During flowering time, some protection is needed if strong winds are experienced, and this is best done with temporary ti-tree fences, removing them after flowering time. Where the natural rainfall is sufficient to maintain the garden, Daffodils can be planted in many places, such as in groups or clumps among deciduous trees, or in herbaceous borders, and left undisturbed for some years. In districts where artificial watering is frequently necessary, it is better to give the Daffodils a bed to themselves, as they will not stand up to flooding during their resting period.

### DEPTH.

Plant according to local conditions and soil. In hot, dry areas or light, sandy soil, plant deeply, sometimes, in extreme cases, to 7 inches deep. In cold, wet or heavy soils as shallow as 3 inches deep on raised beds is ample. Under average conditions and medium soil, 4½ inches to 5 inches is ideal.

### TIME TO PLANT.

Plant early for the best results. Obtain the bulbs as soon as they become available, usually in February-March, and plant immediately, as they are better in the soil than out. Actually, they have only a short dormant period. Bulbs kept out of the ground for lengthy periods deteriorate. Bulbs planted late result in smaller flowers and shorter stems, and the bulbs do not make up as well for the following season—a most important point.

### DISTANCE.

The spacing of the bulbs varies according to the purpose for which they are required. For cut flowers beds 4 feet wide, the rows 1 foot apart, running across the bed, the bulbs 5 inches apart in the rows, is fairly satisfactory under average conditions. If growing under good average conditions, such beds should be lifted and replanted every three or four years. For exhibition flowers the beds are best made as follows: Strips of soil 4 feet 6 inches wide are marked out, the top soil is removed from 1 foot 6 inches of the strip and placed on the remaining 3 feet, thus making a raised bed 3 feet wide. Plant the bulbs 6 inches apart in the rows 9 inches from the edge of the bed, two rows to a bed running lengthways, leaving 1 foot 6 inches in the middle of the bed for cultivating, etc. Such a bed, if soil is fair, will yield good flowers for from three to five years.

*Double Daffodils have many admirers.*

### LIFTING THE BULBS.

When the foliage turns yellow and is wilting away this indicates that root action has stopped.

Throughout December and the first week or two in January is the best time to lift Daffodils; in any case, all lifting should be completed by the end of February, before the early Autumn rains.

### MANURE.

Bone Dust is the safest and best manure to use, a handful to 4 or 5 feet of row, varying according to the fertility of the soil, erring to the side of too little rather than too much. It is much better to make the most of the soil by thorough preparation and cultivation rather than to force them with fertilisers. The later introduced varieties will give high-class flowers without forcing.

### RANDOM NOTES.

In the districts where warm weather is experienced in Spring, the results are more likely to be satisfactory if planting is confined to early flowering varieties, such as Golden City and King Alfred (Yellow Trumpets).

Where the beds are subject to severe heat in Summer, some protection is needed. Branches or grass should be laid over the beds when the foliage has dried off, and left until March, when they should be removed. Do not cut the foliage off Daffodils after they have finished flowering; they may look untidy, but while it still remains green, it is aiding the bulb to build up for the following season. Generally speaking, the Barri and Poeticus sections except for a very few varieties, are better planted in areas where a long cool Spring is the rule.

In districts where the weather starts to dry off early in Spring, the bulbs should be watered and the beds kept moist until the foliage dies off during November and December. This period is a vital one, as the developments taking place in the bulb at this time govern the succeeding crop of flowers. One essential factor is, buy good sound bulbs; these will repay themselves; poor or diseased bulbs are a liability. See also page 182.

## FREESIAS, SPARAXIS, TRITONIAS, BABIANAS AND IXIAS.

These are all natives of the Cape and require similar conditions for their successful culture. They revel in a sunny, well-drained position; they require moisture only during their period of growth—Autumn, Winter and Spring. Once they die down they will stand any amount of drought and hot sun. This makes them particularly suitable for growing in grass.

We have rarely seen a more beautiful sight than one of the old-time Sydney gardens, where there are wide sweeps of grass lawn and sloping terraces planted with these bulbs, the majority being Sparaxis. For a fortnight or three weeks in the Spring these lawns are masses of the richest colourings. The soil is almost pure sand, and the bulbs receive no attention whatever. The only objection to this method of culture is that the grass has to remain unmown during the Spring months, but, as soon as the bulbs go to rest, it is cut with a scythe and afterwards regularly mown till the bulbs show up again.

Freesias, Sparaxis and Tritonias are all dwarf plants. The colours harmonise well, and they may be used in combination, either as an edging in the borders or as clumps or masses. Babianas are also dwarf, and good mixtures should have a nice balance of mauve, purple, blue, white and red shades. They are best planted by themselves. Ixias are taller, up to 2 feet, and require their special place in the borders. All these bulbs should be planted in March or April, say, 4 inches apart. Sandy soil suits them best, but they thrive in any good garden soil free from fresh manure. Once established and not disturbed, in suitable climates they will grow and flower year after year. Once introduced into a grass lawn they will seed themselves each year, and it is wonderful how their numbers increase without any trouble or care from the gardener.

Freesias make beautiful pot plants or may be grown in fibre in bowls. Grown under glass or shade the flowers are much more delicate than when grown in the open. The new Hybrid Freesias are a delightful new creation, and they can now be obtained in many beautiful colours of bronze, yellow, rose, mauve, purple, etc.

Ixias require similar treatment to Freesias and other Cape bulbs. They are very hardy and will usually stand being left in the ground for some years, but if preferred they can be lifted every year and replanted in the Spring.

## GLADIOLI.

There is no bulb grown that will return a more profitable display of bloom for the small amount of attention necessary for its cultivation than the Gladiolus. They will thrive in almost any climate or soil, growing equally as well in the hot districts of Australia as the cooler parts, providing that they are planted at such times as will allow the blooming period to occur before or after the extreme heat of mid-Summer. They take approximately three to three-and-a-half months from the appear-

*The Miniature Gladioli—Gladioli Nanus —make delightful indoor decoration. See Page 157.*

ance of the shoot until flowering time, according to weather conditions during the growing period.

### SITUATION.

This depends mainly upon climatic conditions. Although Gladiolus thrive best in a sunny situation and dislike shade, it should be remembered that hot sunshine is apt to spoil the blooms, especially in warm climates. Our experience has proved that an easterly aspect, shaded from the afternoon sun and westerly winds, will produce best results.

### SOIL.

They will thrive in any good garden soil, but naturally a good, deep, well-drained one will produce best results. If the soil is poor, well-decayed manure may be added, but should not come in contact with the bulb. If this is not available, a good dressing of bone-dust or superphosphate, well raked in at planting, will assist.

### TIME OF PLANTING.

Depends mainly on climate. In cool districts they may be planted in August, but not before they show signs of shooting, and successive plantings may be made until February. This system will then produce blooms almost throughout the Summer and Autumn. In warm localities they may be planted from May to September to produce blooms before the intense heat of the Summer sun scorches them. The bulbs should be planted 4 to 5 inches deep in light, sandy soil and 3 to 4 inches deep in heavier soils. Vary the depth, according to climate, viz., deepest in hot climates and shallowest in cool climates. Any formation of planting may be used, so long as the bulbs are spaced at least 6 inches apart.

### CARE DURING GROWTH.

The soil should be lightly cultivated regularly each week once the plants reach 2 to 3 inches of growth. This care conserves moisture in light soils and will enable air and sunlight to penetrate heavier soils.

### THRIPS.

In the coastal districts of New South Wales, Thrips have caused serious losses to Gladioli enthusiasts in the past, but science has now come to the rescue with the famous D.D.T. preparations, and we are pleased to advise our customers that supplies of D.D.T., both in spray and dust forms, together with instructions on their use, are now available on application. When the plants have reached the third or fourth leaf stage of growth, an application of D.D.T. Spray or Dust, such as "Rulene" or "Mustex," every ten days will ensure clean Thrip-free growth until the plants have finished flowering.

### FLOWERING.

If the plants are of large growth or subject to wind, they should be staked just before the flower bud appears. For show purposes a slender stake of approximately 6 feet should be used so that the flower stem may be held firmly in an upright position, attached every 5 or 6 inches. In warm weather the flower spike should be cut when the first flower opens and placed in water in a cool position; almost every bud will then open over a period of a few days, and a much finer spike of flowers will be obtained than if left in the garden. Some exhibition growers adopt the practice of placing a large brown paper bag, with a hole cut in the bottom, over the flower spike when the first bud opens, and by this method a full spike of bloom is obtained for show purposes.

### LIFTING THE BULBS.

This should be done after flowering, as soon as the foliage commences to turn yellow, generally about 4 to 6 weeks after blooming, or 3 weeks longer in dry weather. On no account should the bulbs be left in the ground, as moisture and the cold soil during the resting period is disastrous to them. After lifting the bulbs allow the foliage to dry out for 2 to 3 weeks and then cut off leaves close to the bulbs. They may then be given a dusting with D.D.T. and stored in a cool, dry shed or room until next planting season arrives. See also page 172.

## HYACINTHS.

These are very largely grown in England for Spring blooming, either as border plants or in pots or glasses for indoor growth. The cheap Dutch-grown bulbs are not suitable for the Southern Hemisphere, as they are not acclimatized to our seasons, and the loss in importing and growing them on for two or three years makes these bulbs rather too expensive for planting on a large scale in the open. Still, as pot plants, grown in fibre in bowls, or for a few specially prominent places in the borders, they are well worth their cost and the labour and attention in growing. The Single varieties are handsomer and make finer spikes than the Doubles. They can be supplied in the various shades of white, cream, blush, rose, red, light blue, and dark blue. They have a delightful perfume and last a considerable time in bloom. They like a good rich, light soil, but no fresh manure. During their growing season the ground should be kept moist. Plant in March or April, and lift the bulbs as they go to rest in November. Hyacinths are best lifted just before the foliage loses its sap, and the leaves should remain attached to the bulbs till they fall away naturally. Store the bulbs in a cool, airy, shady place. These dry bulbs should be looked over now and again, removing any showing signs of decay.

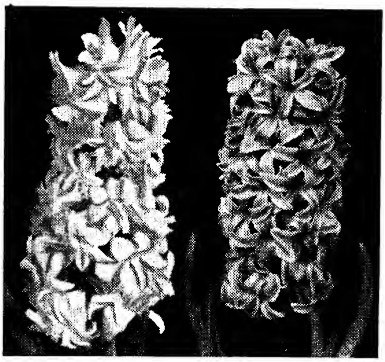
**ROMAN HYACINTH:** Plant February to July. A well-known French form of the Hyacinth. Produces single flowers much earlier than the Dutch variety, in graceful spikes with slender stems, 8 to 12 inches long. The White Roman variety is especially suited for florists, as they produce two to four blooms from each bulb.

**HYACINTHUS CANDICANS (Summer-Flowering Hyacinths):** Plant April to August. A hardy bulb, producing tall spikes 2 to 3 feet in length, each carrying 20 or more fragrant, pure white, bell-shaped flowers. Plant 4 inches deep. Can be left undisturbed for several years.

## IRIS.

In choosing a position in the garden for Iris make sure that it is sunny and well-drained. If the soil is poor it could have an application of old cow manure or even some bone dust may be dug in. With the exception of Japanese Iris, to which it is very harmful, all other varieties thrive in well limed ground. This can be applied at the rate of 1 lb. per square yard.

In each type of Iris there are several varieties, a full list of which will be found in Yates' Bulb List with descriptions.



*Double Hyacinth.* *Single Hyacinth.*

**BEARDED FLAG IRIS:** These bulbs will thrive almost anywhere, being particularly hardy. Plantings are made at all seasons in a well-drained soil. Although they do well in a sunny spot they will also grow in the semi-shade.

**JAPANESE IRIS:** The secret of growing this type of Iris is to give them a damp situation without actually allowing the bulbs to be continually wet. They thrive on the banks of streams or ponds because under such conditions the bulbs are kept just damp but the roots go right down into the wetter parts. The immense flowers are remarkably decorative and can be grown in pots. These may be submerged almost up to the rim in water. No special treatment is required, except to avoid giving them any lime. For soil dispense a good mixture of leaf mould, old cow manure and loam. Leave for at least two years but after this time the roots can be divided with a spade and replanted. Plant from April to September.

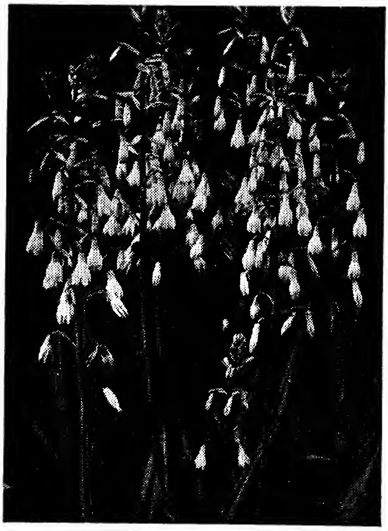
**DUTCH IRIS:** These have now largely superseded the Spanish Iris, being much earlier flowering and with far larger bloom. They make splendid specimens for cutting and are just as easy to cultivate as the Spanish type. Any well-drained garden loams suits them and they require very little attention. Plant from February until May.

**SPANISH IRIS:** Planting of this Iris should be made from February to May. They are most easily grown in any well-drained garden loam and require very little attention. They flower in the late Spring and are very adaptable to vase decoration.

**OTHER IRIS:** In Yates' Bulb List will be found a complete list of less common Iris, but many are very beautiful and well worth growing. In most cases their cultivation is very similar.

## LACHENALIA.

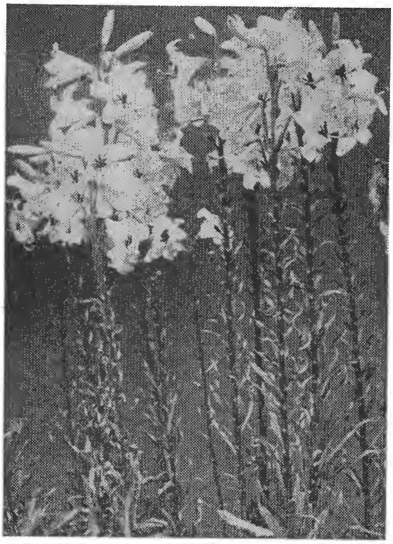
These require similar treatment to other Cape bulbs, such as Freesias, etc. They favour rather richer soil and a good quantity of old rotted manure can be added. Florets form on the stem in Hyacinth-like manner, but the bells hang down and are remarkably brightly coloured. For pot culture they are among the best of the bulbs that can be grown by this method, and are specially adapted to growing in fibre.



*Hyacinthus Candicans is a good choice for a Summer-flowering bulb.*

## LILIUMS.

The many species of Lilies are most graceful and beautiful border plants, and, as flowers for house or church decoration, they are unequalled. Unfortunately, they do not succeed well in most parts of Australia, the air being too dry, but such varieties as Harrisii (or Longiflorum), Speciosum, Henryii, Davuricum, Regale, Tiger Lilies, etc., will grow well around Sydney in well-drained, fairly rich sandy loam and preferably where they will have the shade of deciduous shrubs some distance away during the hot Summer. They like a cool, moist semi-shaded situation, free from extreme heat or cold. They are at home in Tasmania, and in the coastal districts of the southern parts of Australia. In other places they make excellent bush-house plants grown in pots, and succeed admirably under such conditions. They should be planted in the late Autumn just as they have gone to rest, in a light rich, loamy soil, with good drainage.



*Lilium Candidum is one of the most popular of the Lilium family.*

It is a good plan to put a shovelful of sand round the bulbs when planting, and they should be planted from 6 to 9 inches deep, according to size; most of them are best planted on their sides to prevent rotting. Lilies planted in the open ground grow much better if left undisturbed, and succeed well if grown among shrubs, which give them partial shade from wind and sun. Write Arthur Yates and Co. Pty. Ltd.. for a list of varieties available and full details of cultivation.

## LILY OF THE VALLEY.

These lovely Spring-flowering plants require a moist, partially-shaded situation. It is possible to grow them near Sydney in a damp bed well enriched with old cow manure, and some coarse sand or grit and leaf mould, with a southerly aspect, shaded from direct sunlight. In cool climates they do not need quite so much shade, but always require a moist bed, which should have good drainage. Do not disturb the beds for many years, but mulch with well-rotted cow manure each August. At any time during August and September, Lily of the Valley may be planted in pots. By gently forcing in a glass-house or frame, they may be had in bloom in three weeks from planting, or in a little longer period if grown in a warm sunny corner. They make exquisite pot plants for indoor decoration. This is also an excellent and charming method of growing them in the warmer districts of Australia, where they would not otherwise succeed. We do not recommend them for growing outside in warm climates.

## MONTBRETIAS.

Very decorative Summer-flowering border plants. They thrive in most gardens in the temperate parts of Australia. The bulbs should be planted during the late Autumn or early Winter months, any rich soil and an open, sunny situation suiting them well. Once established, they do not require to be disturbed; they will come up and flower every year.

There are some greatly improved varieties of Montbretias now available. These are worth a place in any garden where border flowers are grown extensively.

## NERINES.

### (Guernsey Lilies)

These have been improved wonderfully in recent years, and can now be obtained in all colours, from pure white to palest pink and deepest crimson, some varieties like Fothergilli (a bright scarlet) being spangled with gold.

The Nerine Japonica or Japanese Spider Lily is a very interesting bulbous plant with lovely flowers, which are sent up before the foliage in the late Summer. The bright red flowers are borne in a dense cluster, and have long curved stamens, giving the bloom a very graceful appearance. They grow to a height of 18 inches, and should be planted when dormant in the Spring or early Summer. They are all hardy and will grow well in any ordinary garden in a sunny position, and should not be disturbed. Plant bulbs with the necks showing level with the ground. They will sometimes not flower till the second year.

## RANUNCULUS.

See pages 129, 147, 172.

## SPREKELIA FORMOSISSIMA.

### (Jacobean Lily)

A very lovely and curiously formed flower of rich, deep crimson, resembling a large orchid, and flowering in early Summer. Extremely showy. They should be planted in the Summer in rich soil, but will grow well in any ordinary garden.

## TUBEROSE.

This is one of the most fragrant of all the bulb flowers. In choosing a position for them it is well to remember that they favour warmth and plenty of water, but this does not mean that they should be planted in wet, soggy soil. The soil should be deeply dug, fairly rich and thoroughly broken up. They do not thrive in the semi-shade and should, therefore, be kept well out in the sun. Plant from May until August. Ensure when planting that the top of the bulb is just on the surface. Bulbs can be left undisturbed for about three years, after which they should be lifted, the clumps divided and replanted.

## TULIPS.

Next to the Daffodils, Tulips are the handsomest of the Spring-flowering bulbs. Unfortunately they require a cool climate to grow them to perfection. They grow well where such English fruits as Cherries and Gooseberries thrive, and in rather warmer climates they may be grown as pot plants. In Europe they are very largely grown for forcing in pots.

As in the Daffodils, there are several distinct groups, but we consider the Darwin and Cottage types to be the most important and are the most widely grown in Australia. The Darwins are tall-growing varieties with large flowers and of vigorous growth. Generally self-colours are preferred in Tulips but some admire the striped varieties which are really the result of a virus disease. This disease has been proved to be carried by a small green fly and those who wish to protect their Tulips should spray them in the Spring with a good insecticide. It is also advisable to remove any striped flowering bulbs from the bed.

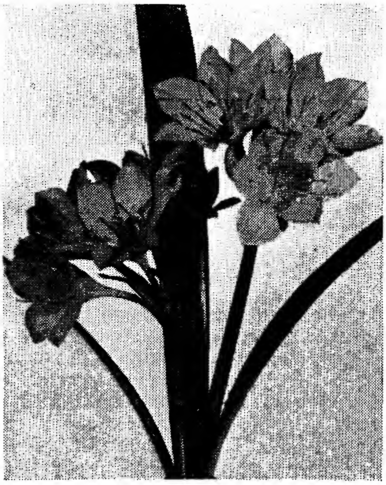
To be successful with Tulips it is necessary first of all to have healthy bulbs and good, rich, well-drained soil. They appear to thrive best in a light soil which has been previously enriched in the early Autumn with well-decayed dairy or stable manure to a depth of about 2 feet. Heavy soil will also grow good Tulips, but it must be prepared by working in manure and providing drainage. Plant the Tulips 6 inches deep in light soil and 4 inches deep in heavy soil, but care must be taken that no manure comes into actual contact with the bulbs. To ensure this it is advisable to bed each bulb in clean sand. They should be planted in March or April, the earlier the better, and will come into bloom after the Daffodils are over in the following Spring. The same treatment in growing and resting the bulbs as given for Daffodils will suit Tulips.

These bulbs favour well-limed ground and if none has been applied during the previous 12 months give a good application—about two double handfuls to each square yard.

## VALLOTA PURPUREA.
### (The Scarborough Lily)

Handsome plants with gorgeous bright red blooms, measuring from 3 to 4 inches across and borne in large clusters on tall stems. In suitable situations these plants soon form large clumps. They thrive in a moist, rich well-drained soil, and to obtain the best results should not be disturbed.

Plant at any season and make certain that the bulb is about 4 inches



*Vallota Purpurea.*

deep from the crown. It can either be grown in a mass or in pots and other garden ornaments. Give them a sunny position and avoid badly-drained places.

## OTHER BULBS WELL WORTH GROWING—

**ACHIMENE:** Plant July to October. Attractive pendulous growth, for hanging baskets, producing pretty trumpet flowers in shades of blue and purple with contrasting eye. The small scaly grub-like bulbs should be planted an inch deep, about 4 to 6 bulbs are sufficient for a 10-inch basket. They like well made up soil, and warm, moist conditions for Summer flowering.

**ALOCASIA MACRORHIZA (Spoon Lily):** Plant all seasons. Large foliage, evergreen plant with spoon-shaped green flower very sweetly scented on long green stem. These plants are quite easily grown and prefer a moderately rich soil and ample water during dry weather. They can also be grown in large pots. If planted in garden beds space 2 feet apart.

**BILLBERGIA NUTANS:** Plant all seasons. An exquisitely beautiful and hardy evergreen bulbous plant, thriving in almost any situation. The green tubular flowers are striped with blue and sheathed in a pink papery stem. They hang gracefully in bunches.

**CLIVIA (Imantophyllum):** Plant all seasons. Evergreen bulbous plants producing in the Spring large clusters of orange-yellow, funnel-shaped flowers on stems 12 to 15 inches long. Clivias grow well in the ground in partial shade, or, as pot or tub specimens for the bush-house or verandah.

**CRINUM:** Plant all seasons. Evergreen herbaceous bulbs, producing tall spikes of scented blooms in the Spring, mostly delicate shades of pink. Thrive in any good rich soil, or may be grown as tub specimens.

**CYRTANTHUS** (Ifala Lily): Plant March to July. Hardy bulbs flowering in Spring and Summer; may be grown in the open ground or as pot plants, placing 3 or more bulbs in each pot. Any good garden soil is suitable. It is advisable to leave the bulbs undisturbed for a few years.

**EUCHARIS AMAZONICA (Eucharis Lily):** Plant all seasons. An evergreen bulbous plant with sweet scented pure white flowers; suitable for growing in pots or open ground. Should be left undisturbed for several seasons.

**GLORIOSA SUPERBA (Climbing Lily):** Plant June to October. Pretty semi-climbing plants for a warm, sheltered position, bearing curious orchid-like blooms of orange scarlet and yellow. Plant with top of tuber 1 inch below surface.

**GLOXINIA:** Plant June to November. Plant in well-drained pots with the top of the bulb level with the surface. See also pages 110 and 172.

**GLADIOLI NANUS (Miniature Gladioli):** Plant February to May. Unlike the true Gladioli these bulbs can be left in the same position for several years and are lifted when they become too crowded. They thrive in any moderately rich garden loam and should preferably be given a position receiving the morning sun. They are very hardy and grow without a great deal of attention. See illustration, page 152.

**HIPPEASTRUM:** Plant January to April. These stately bulbous plants make ideal subjects for pots or barrels. They thrive best in heavy, rich soil; the colours range from white streaked with red to deepest crimson. The blooms are immense, trumpet-shaped, produced on rigid spikes 2 to 3 feet high. Plant with the neck of the bulb just showing above the surface.

**KNIPHOFIA (TRITOMA) (Torch Lily or Red Hot Poker):** Plant all seasons. Extremely hardy and produces cones of brightly-coloured bell-shaped flowers on long thick stems. Useful as a cut flower or for garden display. All varieties are Spring and early Summer flowering. Complete list on request.

**POLYGONATUM (Solomon's Seal):** Plant April to September. Requires a semi-shaded position. The small, bell-shaped flowers are white tipped with green, and hang gracefully in groups along the 18-inch stems. These will grow satisfactorily in warm, sunny places, though give better flowers and longer stems in moist, shady spots. The blooms last well in water after cutting.

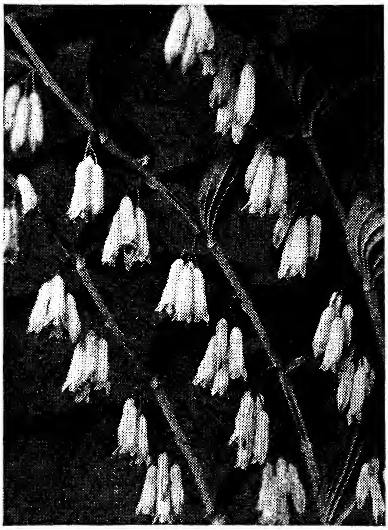
**SCILLA (Blue Bells or Wood Hyacinths):** Plant January to June. Suitable for naturalising under the shade of trees and shrubs. They prefer a moderately rich loam and regular watering during the growing season if the weather is dry.

**SNOWFLAKE (Leucojum):** Plant February to May. Often known as Snowdrops, these dainty bell-shaped flowers are pure white with a spot of green on the outside of each petal. Easily grown, thriving in almost any soil except perhaps poor dry sand.

**SPARAXIS:** Plant February to July. Resembling Freesias in habit, usetul for borders or for growing naturally on grassed banks. Plant one or two inches deep. Once established require very little attention. Where grown in garden beds and similar places bulbs can be lifted say every three years if they become too crowded.

**SPARAXIS (DIERAMA):** Plant May to August. Quite different from Sparaxis Tricolour, growing to about 3 feet, the bell-shaped flowers being produced on long pendulous branches. Plant 3 to 4 inches deep in any average garden loam giving them a sunny situation sheltered from wind.

**SPREKELIA FORMOSISSIMA (Jacobean Lily):** Plant April to November. A hardy bulbous plant bearing large orchid-like blooms of deep crimson. Prefers a sunny situation and a moderately rich soil.



*Polygonatum flowers during the Summer months.*

**STERNBERGIA (Autumn Crocus):** Plant December to March. Hardy bulbs that thrive in almost any garden soil and produce bright yellow Crocus-like flowers in abundance during the Autumn.

**STREPTANTHERA (Cuprea):** Plant February to May. Cup-shaped blooms of bright tangerine, with dark purplish-brown markings. Closely allied to the Sparaxis. Very hardy but likes an open situation and deep soil.

**TIGRIDIA (Tiger Flower):** Plant June to September. Hardy bulbs that thrive under extremes of both heat and cold. The bright coloured blooms are beautifully marked and spotted. They are best planted in clumps of 6 or more bulbs so that the flowers that fade are, each day, replaced with a fresh supply. Height 2 feet, Summer flowering.

**TRITELEIA (Star Violets):** Plant January to June. Suitable for growing in clumps, beneath trees or shrubs. Plant 1½ to 2 inches deep. Spring flowering.

**TULBAGHIA:** Plant April to August. A low-growing plant with lavender flowers borne in bunches; useful for cutting. Plant with tuber portion 1 inch below surface.

**WATSONIA:** Plant February to June. Similar in growth and appearance to Gladioli. will thrive almost anywhere and are excellent for planting in places where the garden cannot receive much attention. Plant about 4 inches deep

**ZEPHYRANTHES:** Plant May to August. Beautiful bulbous plants, bearing Crocus-like flowers in the Autumn. Suitable for borders. These bulbs like a rich, sandy loam. For heavy ground add well-decayed stable manure, and for light soils thoroughly rotted cow manure. Any manure used should be from three to six months old. If planted in beds plant with the tip of the bulb just showing on the surface, but for garden planting plant about 3 inches deep. Best effect is obtained by planting bulbs in clumps or groups, spacing each bulb 4 inches apart.

HYACINTHS
ALSTROEMERIA
AGAPANTHUS
AMARYLLIS (BELLADONNA LILY)
DAFFODILS KING ALFRED THE MOST RELIABLE AND BEST FOR THE HOME GARDEN
HIPPEASTRUMS
SCILLA
IXIAS

## CHAPTER 9.

# ROSES.

**Roses in one form or another are practically an essential in any garden design, and because of the varied types now in commerce it is possible to choose suitable varieties no matter what difficulty the soil, climate and situation presents. Because of their adaptability and their readiness to give a maximum return for a minimum of help, it becomes comparatively easy for even an inexperienced gardener to grow really good roses. Their lengthy flowering season, continuity of bloom, form, fragrance, their charm for indoor decoration with shades to match any colour scheme, rightly places the rose as the Queen of Flowers. With climbing forms to cover fences and pergolas, bush types for bedding and borders or hedges, the Polyanthus for massing, low hedges or as single rows to edge borders or beds, almost every gardening need for roses is well supplied. Finally, there are the much-sought-after Standard Roses which are so valuable where it is desired to grow annuals close to the plants.**

**There are certain essentials to be observed, particularly regarding the selection of varieties, planting, pruning, spraying, which collectively must produce good results. With this in view, all the general principles on the care and management of different classes of roses are given, as applying to average Australian conditions.**

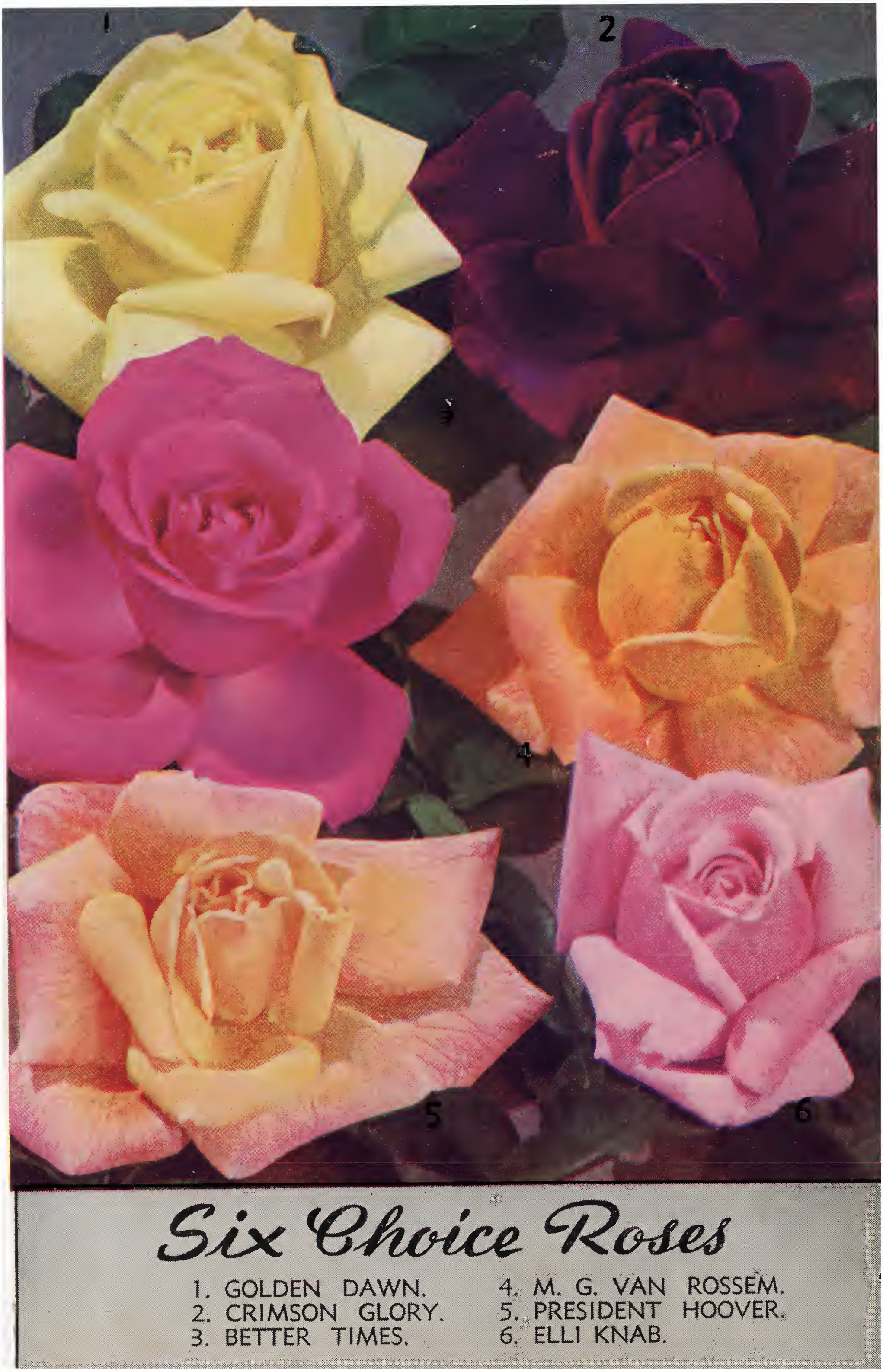
### SOIL.

Frequently there is little choice as to soil. The best has to be made of what already is there, but a stiff, greasy or chocolate loam is the ideal, while soils of a sandy nature without a clay subsoil represent the poorest type of rose soil. The poorest of soils, however, can be improved by the use of animal manures. In the case of new ground, it is advisable to prepare it some weeks before planting, breaking it up to a depth of at least 12 inches. A dressing of dolomite lime is also beneficial without being essential.

### SITUATION.

Rose beds and borders should always be chosen with the idea of maximum sunshine. Do not plant under or near trees or large shrubs, in narrow, draughty passages, and, generally speaking, the south side of a house or paling fence is unsuitable. Ground

*Although introduced during recent years the Rose Peace is now being grown in widely separated places of totally different climatic conditions.*



# Six Choice Roses

1. GOLDEN DAWN.
2. CRIMSON GLORY.
3. BETTER TIMES.
4. M. G. VAN ROSSEM.
5. PRESIDENT HOOVER.
6. ELLI KNAB.

Trumpet, Barri and Incomparabilis types of Daffodils (Narcissus)—the lovely harbingers of Spring.

Yates' New Hybrids Freesias have their own charm and fragrance.

which is inclined to bog and carry excess water for some days after a heavy fall of rain also is not good, but a rubble or pipe drain will correct this. Plenty of sunshine is essential to the plant for its best efforts, while shade and lack of air circulation always bring its penalties in Black Spot and Mildew.

## SELECTION.

With Australia's vast spaces, it is quite understandable that a wide diversity of climatic conditions must exist. Therefore, a variety which does well in the cold mountainous districts in the south of the continent could not be reasonably expected to give similar results in the tropical north. And so the matter of the selection of varieties becomes complicated. It is advised, particularly with beginners, that some advice be sought, preferably professional, on what varieties to grow. Selection of varieties can be regarded as half way to success.

We will always be glad to select varieties suitable for any particular district and, when ordering, a brief description of your climate would always be helpful. Here is a brief list of varieties which have been proved in practice to be suitable for the districts under which they appear.

**ROSES FOR GENERAL COASTAL CONDITIONS** (such as would be experienced in the area stretching from Bega, N.S.W., to Brisbane, Q'land):—*Crimson Glory, E. G. Hill, Etoile de Hollande, Granat, Grand Duchess Charlotte, Poinsettia, Red Radiance, Texas Centennial, Wm. Orr, Eclipse, Golden Dawn, M. G. Van Rossem, Pres. H. Hoover, Mad. Du Pont, Talisman, Comtesse Vandal, Elite, Korovo, Madame Butterfly, Picture, Una Wallace, Radiance, Rose Marie, Mrs. H. Stevens, Peace (Mme. de Meilland).*

**ROSES FOR INLAND DISTRICTS** (50 miles or more from the coast):—*Crimson Glory, Daily Mail Scented, Etoile de Hollande, Granat, Grand Duchess Charlotte, Hadley, Lemania, Texas Centennial, Wm. Orr, Eclipse, Golden Dawn, M. G. Van Rossem, Pres. H. Hoover, Signora P. Puricelli, Souv. Denier Van Der Gon, Talisman, Elite, Comtesse Vandal, Editor McFarland, Korovo, Madame Butterfly, Shot Silk, Una Wallace, Mrs. H. Stevens, Peace (Mme. de Meilland).*

**ROSES FOR TROPICAL AND SEMI-TROPICAL DISTRICTS** (with a climate similar to that of the North Queensland coast and Islands):—*Better Times, Chaplin's Triumph, Crimson Glory, E. G. Hill, Granat, Laurent Carle, Poinsettia, Rome Glory, William Orr, Golden Dawn, Sir Henry Segrave, Souv. De H. A. Verschuren, Columbia, Elli Knab, J. J. L. Mock, Madame A. Chatenay, Maman Cochet, President Macia, Queensland Beauty, Una Wallace, Madame Jules Bouche, Mrs. H. Brocklebank, Madame L. Lens, White Maman Cochet, Peace (Mme. de Meilland).*

## PLANTING.

Roses may be planted from April to September, inclusive, but in cold climates, August and September are the best months. Under no circumstances should fresh animal manures be used. Rotted animal manure can be mixed with the soil before planting but it should be at least six months old, not less than six inches below the surface soil and thoroughly incorporated by forking it over several times. The soil in which the roots are actually planted should contain NO MANURE, EITHER ANIMAL OR ARTIFICIAL, NO OLD LEAVES OR GRASS CLIPPINGS—NOTHING BUT SOIL. How often do well meaning neighbours and friends advise giving the

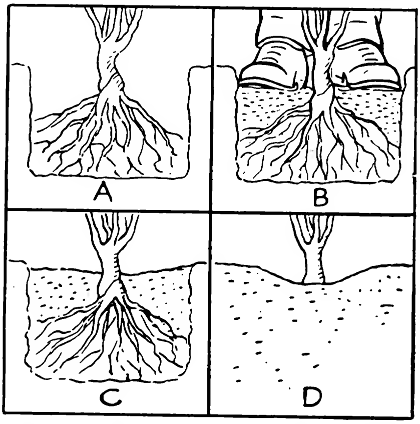
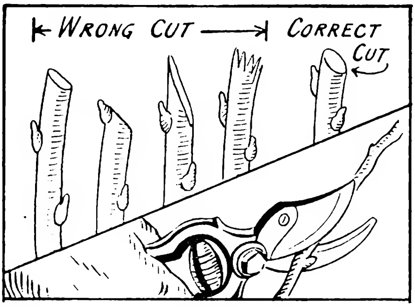


*Fig. A. Spread the root fully. B. Firmly tread the soil without stamping. C. Graft should be practically at soil level. D. A slight depression in soil keeps the water where it is wanted.*



*Top: The first four cuts are quite wrong as is easily seen when compared with the fifth. Bottom: Shows how to hold the secateurs correctly.*

plants a good start by putting a bucketful of manure or rubbish of some sort under each plant, and how frequently is this followed by losses? Holes may be prepared just prior to the actual planting, and should be roughly about 12 inches square by 10 inches deep. After unpacking, roots should not be allowed to dry out; Plants can be placed in a bucket of water and carried around safely until actual planting takes place. Place the plant in the hole with roots dripping with water, spreading out the root in their natural formation, half fill the hole with soil, and tramp firmly. More plants are lost from loose planting and the use of manure at planting time than all other causes. Fill the remainder of the hole with water and allow at least 2 gallons to each plant. The remaining soil may be filled in later after water has subsided and retramped firmly a day or two afterwards. The union should be just visible at the completion of the planting operation. Deep planting so that the union is inches under the soil is very wrong and tends to stunt the growth of a plant, while shallow planting induces suckers from the briar roots and gives the plants no grip or stability in wet, windy weather. Subsequent watering after planting would be determined by the weather. If continually dry, half a kerosene tin (2 gallons of water) per plant per week will be quite sufficient.

## MANURING.

Cow manure will be found to be very satisfactory in the production of good growth, quality and quantity of bloom. It should be applied directly after pruning and lightly forked in. Further applications can be made during the summer and left on the surface to act as a mulch. If further order of preference, fowl manure, pig, horse and sheep manures will be found to be beneficial. Fowl manure should not be allowed to contact the actual butt of the plant; it will burn badly. Where animal or fowl manures are unprocurable, a mixture of 4 parts Blood and Bone to 1 part Sulphate of Ammonia to 1 part of Sulphate or Muriate of Potash, at the rate of a double handful to a plant, evenly spread around the plants at a distance of from 12 to 30 inches from the butt, according to the size of the plant. Lightly hoe or rake in and water heavily. As artificial manures are quick-acting, it is advisable to apply during the actual growing season, say September, December and February, and not at pruning time. But all chemical manures are poor substitutes for animal manures and every effort should be made to apply some form of animal manure each season. Roses prefer a slightly acid or sour soil, but they seem to benefit from lime in most sandy soils. Continual heavy dressings of manure will in time tend to cause too much acidity and this may be corrected by a dressing of Dolomite Lime once every 2 or 3 years. In soils of limestone origin this would not be necessary.

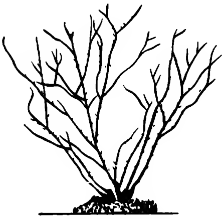
## WATERING.

Rose roots on an established plant are feeding at a depth of from 12 to 30 inches, often much deeper, and therefore it requires a quantity of water to penetrate to that depth. It is both harmful and a waste of time and water to stand for a few minutes directing a jet of water at it. The plant derives absolutely no benefit and the surface water merely encourages Black Spot. Where unlimited quantities of water are available, the ground should be well soaked and kept reasonably moist throughout the growing season, always scratching the top two inches or so to check evaporation and germination of weeds. Far more moisture is lost through evaporation than that used by the plants. In dry areas where water is very limited and must be used sparingly, much can be done by mulching. A thick layer of hay, straw or leaves can prevent evaporation to such an extent that even in the dryest of climates and without watering, plants will come through months of drought. Sawdust, wood shavings, tan bark (unless very old), etc., should not be used; they carry a disease which in turn will attack the roots of roses.

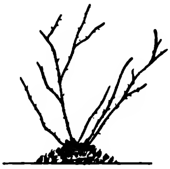
## PRUNING.

An important operation, serving the dual purpose of correcting the shape of the plant and reducing the quantity of growth to improve the quality of the bloom. The time of pruning is governed purely by local conditions. For the most temperate climates late July is the best time, and in the colder districts after the worst of the frosts have gone. Modern roses under Australian conditions resent heavy pruning, and unless for some particular reason, should never be cut heavier than taking one-third of the plant and leaving two-thirds. This applies to all types of bush roses, without exception. For the production of quality and quantity of bloom, the bigger the plants the better. Help your plants attain size and vigour by good cultivation and manuring and then do not undo a season's good work by unmercifully hacking it down to within a few inches of soil level.

**Dwarf or Bush Roses.**—Cut right away all dead wood, old yellowish, weak and spindly growths, leaving the soundest and newest of that season's growth. Select the very best of these, retaining all necessary for a shapely bush. Reduce the length of each retained limb by about one-third, cutting to an eye pointing in the direction you wish it to grow. It is not necessary to keep an open centre such as in summer fruit trees; indeed, the centre of the plant is better fully clothed with foliage, as it will prevent sunburn of the branches. Do not aim particularly at trying to make all your plants look exactly the same after pruning, as each variety has its own habit of growth, and can only be attained when beds or borders are of the one variety. Any summer pruning attempted should be always of a light character followed by heavy watering. Of the roses at present catalogued, there is one exception to this rule, and that is the variety Lorraine Lee which, in coastal or mild districts, produces a flush in May, June and August, as well as in Summer. This variety can therefore be heavily pruned in March and will make new growth for Winter flowers.



*Bush Rose prior to pruning.*



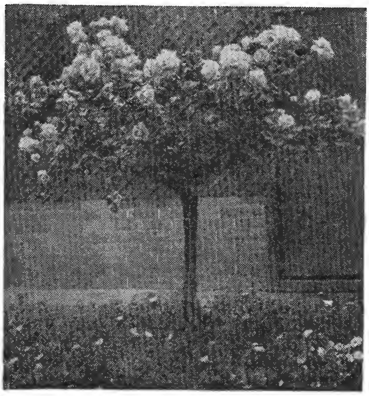
*The same tree with pruning completed.*

*Crimson Glory Rose.*

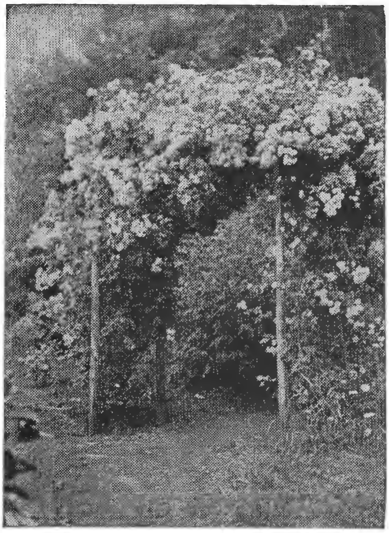
**Climbing Roses.** — Unlike the bush roses, climbing roses should have their main pruning after the Spring flush of bloom. This again would vary according to the climate; the early districts in late October and the later districts, November or even December. First cut completely away any of the canes that appear spent or sickly, leaving only those canes that appear capable of carrying further crops of good blooms. Cut back to two or three eyes each lateral or side shoot on the canes that are to be retained, and train in any new canes which have started growth. Heavy cutting of the old wood is often the rule at this stage, but it will be found to serve the dual purpose of forcing new canes to replace the old ones cut away, forcing the laterals which have been pruned back to two or three eyes into a further crop of bloom. After each successive flowering, laterals should be repruned to two or three eyes on its last flowering growth. The Winter pruning, therefore, will consist of shortening the long canes to their desired length and repruning the laterals to the usual two or three eyes. As with the bush type, the variety Lorraine Lee can have a heavy March pruning but only along the lines indicated above.

**Standard Roses.**—These are well known for their long stems, which do not commence to branch until about two or three feet from the ground, enabling annuals and other plants to be grown close by. These can be pruned much in the same way as bush roses, taking about one-third of their growth and cutting just above an outward pointing eye. The main thing is to ensure a shapely bush with not too much centre growth.

**Wichuraianas or Rambling Roses.**—Best results are obtained from one-year-old wood. Therefore, immediately after flowering, all growth that has flowered is cut away at ground level each year. Young canes take its place and these should be trained in as they grow ready for the next Spring flowering. They are Spring-flowering only. No Winter pruning is necessary other than cutting away the soft tips on the long growths.



*Typical Standard Rose, showing the long, unbranching trunk and spreading head.*



*The Wichuraiana Rose is a popular climber.*

**Polyantha and Hybrid Polyantha Roses.**—Treat in the same manner as advocated for the dwarf or bush roses, except it would not be harmful to this class of rose to cut away one-half instead of one-third as advocated for the bush rose. Because of their denser type of growth, it is advisable to cut to the eyes so that subsequent growth will not meet.

## INSECT PESTS.

**Aphides or Green Fly.**—Any of the D.D.T. sprays at a concentration of 0.1 per cent. will be found to be effective. "Rulene" and "Mustex," which are both D.D.T. concentrations, can be used. Nicotine Sulphate (Black Leaf 40) will usually succeed where all other measures fail.

**Thrips.**—For effective control the treatment must commence before the buds open and the thrips are able to enter and shelter within the petals. Most of the thrips deposit their eggs in the tissue of the plant and are thus protected from the action of the insecticides. The eggs hatch later and re-infestation from these sources, in addition to flying migrants, may take place. When thrips are present in large numbers, more than one application per week may be necessary until their numbers diminish. The same D.D.T. "Rulene" or "Mustex" concentrations as advocated for Aphides are equally effective.

**Red Spider.**—Attacks the underside of the foliage, causing it to mottle, which later turns yellow and dies. An application of White Oil emulsion at a strength of 1 in 40 with "Rulene" or "Mustex" (D.D.T.) will give good results. Also a dust consisting of equal parts by weight of fine dusting sulphur and hydrated lime will give control.

**Scale.**—Both white and red scale attack the stems of roses and are best attacked immediately after pruning. For Winter spraying use White Oil emulsion at the rate of 4 fluid ounces to a gallon of water, add ½ lb. of common washing soda to each gallon of spray. It is advisable to first dissolve the soda in a little hot water. Should spraying be necessary during the growing season, use only the White Oil; soda will burn foliage.

## DISEASES OF ROSES.

**Powdery Mildew** develops on young leaves causing distorted, blister-like areas, which later become covered with a white powdery growth. It also attacks the young shoots, distorting and dwarfing them, while flower buds attacked are completely spoiled. Since both diseases attack the foliage, a complete spray for the control of both diseases is possible. Fungi, causing such diseases of the foliage, can over-winter on fallen leaves, which therefore should be cleaned up and burnt as soon as they drop. Immediately after pruning the plants should be sprayed with Bordeaux Mixture, plus white spraying oil at the rate of one ounce per gallon of spray. During the growing season Bordeaux Mixture at the strength advised by the maker of the brand purchased, plus white oil, one fluid ounce per gallon may be used. The stimulation of vigorous growth by correct manurial and cultural treatment is a necessary part of any disease-control programme.

Experiments in recent years by the Department of Agriculture, N.S.W., have shown that dusting with very fine sulphur dust (not flowers of sulphur, which is much coarser) has given excellent results in the control of both **Black Spot** and **Powdery Mildew.** These dusts are known as finely-divided or "blown" sulphur and are not usually obtainable commercially except when mixed with other dusts, such as "Nosco" All-in-One dust. When the finely-divided sulphur is procurable, this is usually mixed with one part Arsenate of Lead dust to nine parts sulphur. Dusting is necessary during Spring and Autumn months and is best carried out during the early morning.

*Polyantha Roses, especially the Hybrids, are gaining more admirers every season.*

**Die-Back** is seen mainly in coastal districts, being a direct result of the defoliation caused by the disease Black Spot. It is fairly safe to say that die-back would seldom be seen if plants were protected against Black Spot, the control of which is described above. However, where die-back has not been prevented and has affected the bushes, all dead wood should be cut away down to a healthy eye and the spraying or dusting programme as already outlined carried out.

Only on very rare occasions is die-back the result of any other cause, but may appear when rain is so incessant that roots are not free of water for long periods. The treatment, however, is the same, whatever the cause.

## CHAPTER 10.

# LAWNS.

**No matter how great a variety of Shrubs and Annuals a garden may have or what amount of care is exercised in growing them, a great deal of their charm can be easily be marred unless there is a properly planned and well-grown lawn. In other words, a lawn can either make or spoil the appearance of a garden, for its green expanse gives just that necessary contrast to the gay Annuals and flowering Shrubs. A good green lawn is restful to the eye and induces relaxation.**

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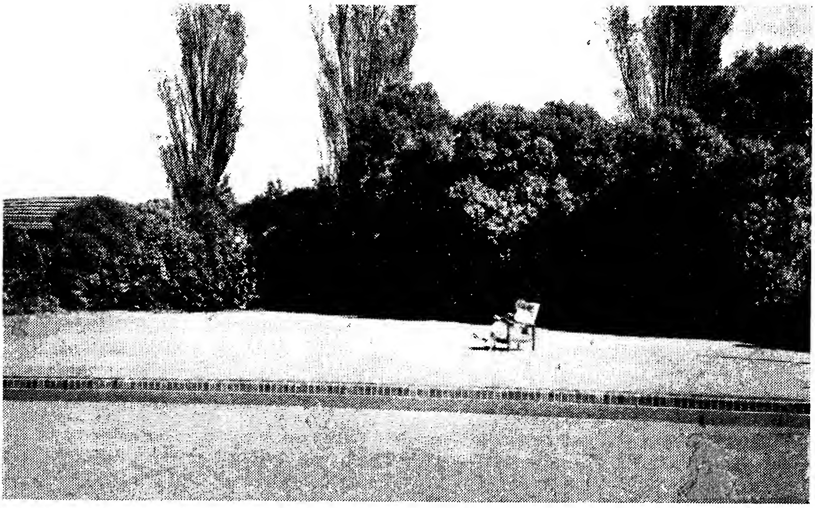
Unfortunately, many suburban garden enthusiasts are able to have only a very limited lawn space, but even so it is possible to give an appearance of size by not breaking it up with island beds and shrubs dotted over the surface. Keep the garden beds to the edges and, as already indicated in the chapter on Layout, avoid sudden bulges which, apart from other factors, tend to lessen the expanse. On the other hand, a variation from the straight formal edges can be attained with gentle curves.

Summer houses, shrub groves, garden ornaments and fish ponds should, in the main, be confined to the boundaries, although a sunken fish pond, the surface of which comes level with the lawn, can sometimes be permitted. However, as most ponds have shrubs or even treees growing around them these also tend to cut the lawn in two.

## GRADING.

Where there is a gentle slope or level ground the gardener has few difficulties in grading, for it is necssary only to level the surface, following the fall of the slope so that future work on the lawn-mowing, watering, fertilising, etc., will be uniform. Where there is a heavy slope, however, or broken ground, it is well worth while spending some time in preparation so as to not only avoid



*A well-kept and well-nourished lawn. To maintain a fairly level surface and for other technical reasons the brick "step" was put in when the lawn was made, but all shrubbery was confined to the boundary, thus affording an uninterrupted view.*

much work later on but also to attain as good a lawn as possible under the conditions prevailing.

Steep slopes, especially where they face the sun, drain very quickly, consequently grasses able to stand drier conditions are necessary. A fair grade is where the ground rises 1 ft. in every 4 ft., but where it is likely to be much steeper than this it may be necessary to dig the soil out, building up the lower ground so as to attain a concave or "inner" curve. Avoid sudden drop or almost straight "walls," the top and sides of which will fail to grow grass except under the most favourable conditions.

## SOIL.

Most grasses thrive on a medium loam, although clay loams are quite satisfactory provided they are well cultivated. If very heavy, sand can be added to lighten it and if inclined to be too sandy add heavy loam. Generally speaking, however, the gardener will find that, providing he has average soil, he can establish a successful lawn without having to "import" either loam or sand. Any compost, rotted vegetable matter or leaf mould that is available will all assist in making a first-class foundation.

## DIGGING.

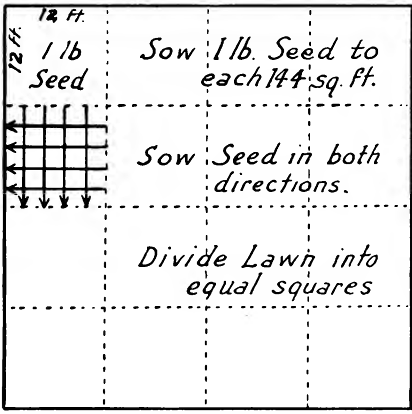
A well-prepared and well-kept lawn will last a life-time, so it is worth going to a little trouble in digging. The top six inches of soil are the most important and about four inches of this should be removed, as described in the chapter on Trenching. The remaining two inches should be broken up with a mattock or suitable tool and left in its place. Over this can be spread any rotted compost, leaves, lawn clipping or similar vegetable matter. The soil that has been dug out may then be returned and left to fallow. The longer it can be left in this condition the better, for such soil will contain many weed seeds and if the ground is regularly watered they will germinate, enabling the weeds to be destroyed as they come through. The best way to do this is to hoe the ground over each time a good crop makes its appearance. This is probably one of the most important factors in making a lawn, because once the seed is sown, and the grass is growing, hours of labour are involved in taking these same weeds out and they may never be properly eradicated. Some gardeners like to first make a flower or vegetable bed of the lawn area for twelve months and after keeping it weed-free for this period they again dig it over to plant their lawn. If this course is followed one of the flower crops could be Lupins, which are wonderful soil improvers.

## MANURING.

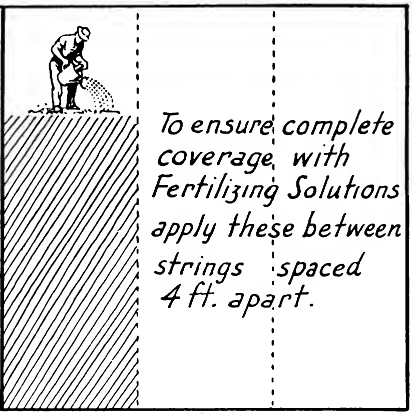
A good lawn must have well prepared soil in which has been incorporated heavy dressings of both organic and inorganic fertilisers to maintain a vivid evergreen and healthy sward. The best organic base is thoroughly rotted animal manure which has been carefully tended for a few months to destroy weeds that are always present. This can be supplemented by rotted vegetable matter from a compost heap, leaf mould, or any reliable commercial humus material. These organic manures should be thoroughly incorporated with the soil before planting the seed or roots and there is no restriction on the quantity that you should apply. Artificial manures are important, too, and the procedure we suggest is that Blood and Bone and Superphosphate be applied, fifty-fifty of each, at the total rate of 4 ounces per square yard before sowing and after the lawn is established, regular dressings of Sulphate of Ammonia carried out say every three months, using 2-3 ounces per square yard each time. Sulphate of Ammonia can be applied either in solution or broadcast in a powder form over the lawn and then watered in. Either method may have a tendency to make the grass go brown for a week or so but it soon recovers and should grow with renewed vigour and colour. The better you want your lawn, the more you have to feed it and there is no question that the lawn will respond in appearance and colour to good care.

## LIMING.

Most grasses succeed in soil which has a tendency to be acid and, in fact, are very intolerant to lime. The chief exception is Couch, and where


12 ft.
12 ft.
1 lb Seed
Sow 1 lb. Seed to each 144 sq. ft.
Sow Seed in both directions.
Divide Lawn into equal squares

1. *Squares can be less than 12 x 12, but seed sowing is based on approximately 1 oz. of seed to the square yard.*


To ensure complete coverage with Fertilizing Solutions apply these between strings spaced 4 ft. apart.

2. *By using this method "patchiness" in lawns is largely avoided.*

this is grown on its own, Lime can be freely used, but where Couch is incorporated with other grasses disliking Lime, it should be dispensed with. The application can be approximately ½ to 1 lb. to the square yard.

## SOWING.

About a week before sowing, soil should again be lightly dug over and the final levelling of the surface completed. This is all-important, for it will be difficult to make corrections later. To ensure that too many hollows do not appear later the surface can be very lightly rolled or tamped. A firm straight-edge laid on the soil will help to indicate any bad deviations and if two of these are used parallel, say 3 feet apart, and another straight-edge laid across them the surface can be tested in sections and corrections made if necessary.

Couch is sown during the late Spring, and roots of grasses, such as Buffalo, Couch and Kikuyu also planted at that time. Most other grasses and mixtures of grasses, however, are sown in the Autumn.

Finally, the day before sowing, give the soil another good watering, so that it is in a moist but not sodden condition. Another light rolling is also possible at this time.

Seed is sown at the rate of 1 ounce to the square yard, or 6 lbs. to 100 square yards. To ensure more even distribution it can be mixed with, say, five times its own bulk of clean, dry sand or loam. Obtaining good even distribution of the seed is not an easy matter, but the method indicated in the accompanying diagram ensures an almost perfect cover. The lawn is divided into sections, either with strings or lines marked into the surface of the soil. The seed is divided into two parts; one lot is sown end to end and the other portion across the lawn. With sowing completed lightly rake and again roll the surface. As lawn seeds are very small only the lightest covering of loam or compost is permissible and there is a great tendency to sow too deeply. The actual covering should not be more than ⅛ inch. After sowing is completed the ground should be thoroughly but lightly watered. If the area is not too large it is a good idea to cover it with tar paper or suitable material so as to retain moisture until the seed germinates. The covering, however, should be removed immediately there are any signs of germination and in warm weather this can be expected in from 8-12 days. It will be necessary to water almost daily until the young grasses are established, but once they take a good hold a weekly watering, according to the weather, should be sufficient.

## WHAT GRASSES WILL YOU GROW?

Actually the choice is rather limited for, although there are a number of grasses used more or less in lawns, they are either not available in commercial quantities or there are other factors which preclude their extensive use in home gardens.

**YATES' No. 1 EVERGREEN MIXTURE.** ("W" including Couch for warm climates or "C" without Couch suitable for cool climates.) This splendid mixture has been established for years as the very best in providing a well balanced, attractive, evergreen sward. It consists of New Zealand Bent (Brown Top or Creeping Bent), Chewings Fescue, with or without Couch, according to the district and requirements. All the grasses are fine leaved and suitably proportioned to ensure Winter and Summer greenness. This mixture, once established, needs good care and plenty of water, and is suited to all districts except where very hot, dry Summers and semi-tropical to tropical conditions are experienced. Sowing rate—1 ounce per square yard. Sowing time—Autumn in warm climates: Autumn or Spring in cool climates.

**YATES' GROW QUICK MIXTURE.** This is our cheapest lawn grass mixture, consisting mainly of Ryegrass with a small proportion of Chewings Fescue and Creeping Bent. It is quick-growing and suited for cool districts where quick cover is required. Used extensively for backyard lawns, parks, etc. Sow seed in the early Autumn at a minimum of 1 ounce per square yard for lawns, or 80 lbs. per acre for parks, etc. This mixture, given good care and regular mowing, can provide a beautiful hardy lawn which in cool climates will remain evergreen.

**COUCH GRASS** (Cynodon Dactylon): Valuable for a Summer-growing lawn but "goes off" during the Winter months. However, around Sydney and similar climates it is perhaps one of the most widely used grasses and has great value when combined with other grasses that are grown during the Winter. It is drought-resistant to a very great degree and stands difficult conditions well, growing on a variety of soils but seen at its best on sandy loams. It is also practically disease free and, whilst its runners are outstandingly vigorous, with a little attention they may be easily controlled. Sow seed or plant runners during Spring.

**QUEENSLAND BLUE COUCH** (Digitaria Didactylon). An excellent lawn grass which seems to stand frost and cold weather better than ordinary Couch, although it has not the same degree of disease resistance. Unfortunately neither seed nor roots are available commercially, but inquiries sent to the Department of Agriculture and Stock, Brisbane, may enable those interested to locate a few roots. It is a Summer-growing grass and should be planted in the Spring.

**BUFFALO GRASS:** A widely-grown grass that is grown only from runners or turves. No seed is available. Whilst it is a Summer-growing grass, it holds its colour fairly well into the Winter. However, it is affected by frost and unless mown regularly makes layers of old runners that form into a heavy mat. If neglected at all it becomes difficult to mow and loses its appearance. Plant Spring and Summer.

**KIKUYU GRASS:** Another grass that is propagated only by runners or turves, but one which is being very widely grown, particularly where it is necessary to cover large areas of fairly rough ground subject to a great deal of wear and tear. Although it makes its growth in the Summer it retains its green colour through the Winter and other seasons. Its chief disadvantage is that as it is such a vigorous grower it needs regular mowings at least once a week during Summer and if neglected the runners are likely to invade the surrounding beds, involving a great deal of work to remove them. However, where this is not thought to be a problem, it is unrivalled for children's playing spaces or covering large backyards. Plant Spring and Summer.

**CARPET GRASS** (Paspalum Compressum). An excellent Summer-growing grass very suited for lawns and coming into well deserved favour in coastal districts. Spreads by over-ground runners, has shiny leaves, hardy and less likely to become spongy like Kikuyu or Buffalo.

A fairly coarse grass but not so coarse as either Kikuyu or Buffalo. Sow seed in early Spring at ½ ounce per square yard.

**CREEPING BENT:** Although this is a fine-leaved grass giving, under very favourable conditions, a first-class lawn, it is seldom used on its own except for Autumn renovation, but frequently in combination with other grasses. It is sown extensively on bowling greens and similar good surfaces and thrives in cool or temperate conditions. Sow during the Autumn.

**CHEWINGS FESCUE:** This, too, is a fine-leaved grass used almost entirely in mixture with other varieties and particularly with Creeping Bent. It grows easily from seed, which is usually available. Sow during Autumn.

**KENTUCKY BLUE GRASS.** Of some value in cool climates and appears to grow better in shade than other lawn grasses. Neither seed nor roots are available commercially.

**PERENNIAL RYEGRASS** is used mainly for covering large areas quickly or in places where a rough turf is suitable. It has a tough habit and to grow successfully there should be good rainfall or a fair water supply available. Its main growing season is during the late Autumn, Winter and early Spring. Sow during Autumn.

## ESTABLISHING LAWNS BY ROOTS AND TURVES.

Soil preparation is the same as for sowing seed, for the aim is to obtain as level a surface as possible. If roots are used, they are planted in rows, say 12 inches apart each way and these are afterwards well watered.

Turves are obtained by cutting squares of soil approximately 12 ins. x 12 ins. and 1½ ins. thick from an area where grasses are already established. These are then laid over the new site, edge to edge, so that they completely cover the surface. They are then well firmed down with a light roller and watered. All crevices are filled with sand or light loam. Another method is to use smaller turves and space them, say, 6 ins. apart either way, filling the space with soil. Both ways are an improvement on the root planting method but are only possible where such turves are available and prove very expensive if they have to be purchased.

## GENERAL CARE AND MAINTENANCE.

If the early preparations for a lawn have been along the lines indicated in this chapter, its future maintenance will be a comparatively simple matter and, providing conditions are favourable, very little labour will be involved. Mowing will be an easy matter, watering and fertilising will be uniform and because of its truly level surface there should be no unequal growing patches.

## MOWING.

There should be no hurry to mow newly-grown grass, for it needs to thoroughly establish itself and obtain a good hold on the soil before this takes place. Allow the grass to grow 3 to 4 inches high and set the rollers so that the blades are fairly high, taking only the top inch or two of grass as it cuts. The height of the blades is increased by loosening the roller setting screws and tapping the roller downwards. Such mowings should be repeated as the top grass grows, but it will not be long before it starts to thicken and the blades can then be lowered accordingly. It will usually be necessary to mow at least once a week in warm weather and, under favourable conditions, perhaps twice. Neglect in mowing will soon produce coarseness and an undermat of grass which involves much more labour than a good surface through doing the job regularly as the occasion demands.

A well-kept lawn is usually a reflection of a well-kept lawnmower, and a neglected machine can never do a good job, besides making the work much harder. Oil the mower with light machine oil each time it is used and occasionally wash all moving parts with kerosene before re-oiling. Keep the bottom blade well set up against the revolving blades, but not too tight. The adjustment of this blade does not affect the height of cutting; only the roller does this. Unless experienced or possessing a special appliance for the job: never attempt to sharpen the revolving blades. Experts do this with accurate machinery.

## WATERING.

Nightly sprinkling of the lawn so often seen in suburban gardens is most harmful, for it induces shallow root growth which is not capable of maintaining grasses even during short, dry spells. In very hot weather the lawn will probably need a good soaking once a week if there is no rain. At other times, fortnightly soakings will probably suffice. Heavy sprays or jets should be avoided and the best method is to use a fine spray. allowing the water to fall like gentle rain. This is particularly true with new lawns or where lawns have been freshly top-dressed, for it will be noted the water will soon make rivulets and gutters, to the detriment of the surface.

Slow and properly controlled irrigation of the lawn is also possible, but not recommended if overhead watering is available.

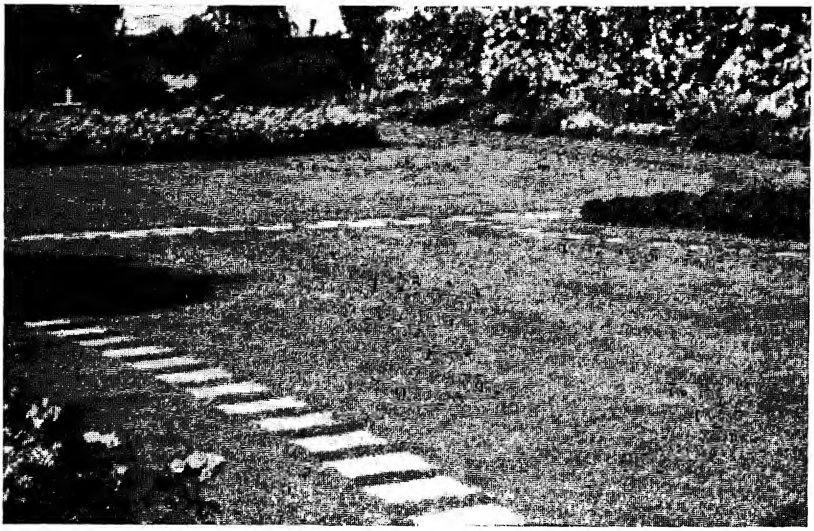
## TOP DRESSING.

This consists of distributing suitable soil or compost over the surface of established lawns, thereby correcting any irregularities and renewing the surface soil. The best time for application is immediately before the Spring growth commences, but it may be done at any time the grass grows vigorously enough to push through the dressing quickly. Done at any other time it keeps the lawn out of use for too long and large quantities of soil may blow away or become trodden and irregular.

Rake and closely mow the lawn, scattering a good artificial fertiliser mixture, as previously recommended, and using the method advocated for sowing seed. Next, the top dressing itself is scattered over the surface as evenly as possible, making sure there are no stones mixed with it. It is also essential that no weed seeds are introduced and it is a good idea to have top dressing on hand some twelve months before use. Suitable seed-free soil can usually be purchased without much difficulty. Leaf mould and rotted manure, providing they are free from seeds, make excellent top dressing.

## RENOVATION.

This, to some extent, will depend on the condition of the lawn during the Autumn, but it is certainly a good practice to make a light over-sowing of seed at this time. Agrostis Tenuis



*Where path-ways are not carrying frequent traffic, stepping stones are preferable. They are far less prominent and more picturesque than a concrete path.*

(Creeping Bent) is perhaps the most widely used, and 1½-3 lbs. of seed per hundred square yards broadcast evenly over the surface. All couch lawns should certainly have this treatment, so that the Agrostis will take the place of the Couch, which browns off during the Winter, and thus ensures a velvety green surface.

To re-seed a lawn cut the turf close, rake it hard and cut close again. Sow the seed uniformly and top-dress very lightly with clean soil or compost. Water well.

## WEED CONTROL.

A healthy, vigorous lawn is far less likely to harbour weeds than one which is neglected. Regular watering, mowing, top-dressing and manuring will all help to keep weeds out. Selective hormone weedkillers of the 2-4-D type have completely changed methods of weed control. Most common lawn weeds are easily exterminated by the use of these preparations.

In all cases it is best to apply the 2-4-D when the weeds are young and in active growth. The best conditions for spraying are when the soil is moist and the weather fine and mild. Rain falling within eight hours of applying will wash off much of the hormone and prevent a complete kill.

The effect on weeds is as follows: The weed absorbs the hormone and its stem and leaves become contorted and twisted, the stem thickens and sometimes splits, the foliage changes colour and finally the plant dies. These changes are caused by the accelerated cell division due to the additional hormone present.

## PESTS AND DISEASES.

Fortunately, most of the popular grasses are not greatly subject to diseases, and bare patches are often caused through overshading by shrubs and trees. Most grasses do not grow at all in heavy shade and others only poorly. There are, however, fungi which will attack grasses, causing brown patches, and a spray to control this can be made by mixing 1½ ozs. each of Calomel and Corrosive Sublimate with 50 gallons of water. This amount will cover an area much greater than the average lawn, being sufficient for approximately 100 square yards (30ft. x 30ft.). This solution should be handled with great care as it is extremely poisonous.

Worms in lawns can also make them unsightly because of the tiny hills they create. Water the lawn with a solution of Copper Sulphate, 1 lb. to 50 gallons of water to each 100 square yards. Apply during still weather when the worms are near the surface. They will quickly come to the top and many will continue to rise even up to a week later. Apply the solution through a coarse rose or watering can.

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## SOME FLOWERING BULBS WE RECOMMEND.

**GLADIOLI.** We list all the standard varieties and we will be pleased to post a full descriptive list when they become available. about March. We can also supply a special mixture which includes all our best named varieties mixed, but not named separately. See page 151 for cultivation notes, and pages 109, 243 in regard to Gladioli from seed.

**ANEMONES.** During the Spring months gay Anemones continue to display very bright colours for several weeks. For general notes on growing from corms see page 147.

**Yates' Special Formula Mixture.** This is an exclusively hand-blended mixture of all the named varieties, including:—**Amethyst Beauty**—Rich lavender-rose; **Beacon**—Vivid scarlet; **Blue Admiral**—Rich bright blue.

Anemones can also be raised from seed—see pages 83, 238.

**RANUNCULUS.** Attractive, early Spring-flowering bulbs, specially suitable for massing in beds or borders. The following are available in Autumn as bulbs or corms. **See page 147 for general notes.**

**Yates' Special Formula Mixture.** This blend will appeal to keen gardeners. The bulbs are hand selected from named varieties. including:—**Golden Glory**—Brilliant yellow shades; **Huntsman**—Mixed red shades; **Sunset**—Rich Autumn shades; **Bonny Lassie**—Fascinating pink shades.

Ranunculus from seed is described on pages 129, 249

**FREESIAS.** See page 151 for cultivation notes. Varieties we offer are:—**Yates' New Hybrids**—A fine mixture of all the best named varieties; **Refracta Alba**—White, with a yellow blotch on the lower petal, heavily scented; **Pan-Pacific Giants**—Large flowering type, having exceptional fragrance.

You can easily grow Freesias from seed—see pages 107, 243.

**CYCLAMEN.** These can be grown from seed or may be procured as flowering corms. See pages 101, 242 for information on seed raising. If you prefer to try these Winter and early Spring-flowering bulbs, we suggest:— **Yates' Giant Large Flowered Mixed.** Also separate colours, red, pink, white, mauve and lilac.

(Continued on page 182)

## CHAPTER 11.

# SOME GARDEN HIGHLIGHTS.

**Most gardeners like to be able to exercise their ingenuity in planning their garden by adding, where suitable, a rockery or ornamental pool, a window box, or perhaps some other highlight to their garden scheme. The aim should be to incorporate these features as if they are part of the garden, so that they do not appear as if they have just been "put there." For instance, a rockery is not just a heap of stones, but should, if possible, be incorporated in a slope, much as it would be in its natural state. If these aims are kept in mind with whatever is added to the garden, they cannot but help improve its appearance and provide other interests apart from the more usual features.**

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### WINDOW BOXES.

For some people, window boxes are a means by which those with very limited garden space, or none at all, can at least have a few flowers, even if it means attaching the "flower beds" to the house but it is not the only purpose of window boxes. Properly constructed and cared for, they add tremendously to the appearance of any home.

**Construction:** The length of a window box will, of course, to some extent be determined by the size of the window, but the longer they are in relation to their width, the better. Small, short boxes are inclined to appear rather insignificant. It adds considerably to their appearance if they are allowed to extend some 6 inches beyond the lines of the window at either end. There must be sufficient width and depth in a box to hold enough soil in which the plants can thrive. Twelve inches deep by nine inches wide has been found a suitable size.

Undoubtedly the best material is concrete, but this involves a considerable amount of work and expense. Those interested are advised to write for free bulletins on making garden ornaments issued by the Australian Cement Manufacturers' Association in each capital city.

Wooden boxes will last for many years and are quite. suitable. The length of their life can be increased by painting the joints when assembling, with Creosote, Sump Oil or even Tar. Tar, or bitumen putty, will help to seal the joints and prevent water spoiling the walls of the house. All joints should be screwed with brass screws, and the timber should be at least 1 inch thick. On very long boxes a bracing section in the centre may be necessary to prevent bulging. While square boxes are quite effective, it is usual to taper them slightly in front so that if the top measurement is 9 inches, the bottom would be 6 or 7 inches.

**Drainage:** This is perhaps the most important aspect of window box culture. The simplest method is to cover the bottom with a 2-inch layer of gravel or some coarse material, and finally sand; but first drill ample holes in the bottom of the box. These holes should be about ¾ inch in diameter and spaced about 3 inches each way. Another method is to stand a watering spout vertically at one end, so that its lower end stands in the gravel, whilst the mouth is above the surface of the soil. All water is poured down this spout and the soil is actually irrigated from underneath. If this method is used, it is not necessary to drill the holes in the bottom of the box, but at one end only, where surplus water can quickly seep away.

**Soil:** Provided the soil is well prepared in the first place, it will not have to be replaced for some years, although the digging in of some rotted manure each year will be necessary. A good mixture is 2 parts loam, 1 part sand, and 1 part manure. If this can be left standing before using and so germinate the weed seeds that might be in it, it will prevent many weeds growing in

*Petunias make splendid window-box plants.*

the box after planting. After spreading the drainage material, fill the box to within about an inch of the top.

**Window Box Plants:** When selecting plants, the aim should be that they contrast as much as possible with the colour of the house as, for instance, red flowers would look rather ineffective against a red brick house, whereas yellow would be most prominent, but with a cream house, red would be most striking. Many trailing plants are suitable for window box culture, and these are allowed to spill over the edges so that the wall is transformed into a colourful backdrop. Dwarf-growing plants can be planted as a background to the trailers, leaving a space of about 6 inches between them. Here are some suggestions:

**Trailing Plants:** Nasturtium Gleam Hybrids; Asparagus Sprengerii; Sturt's Desert Pea (Clianthus Dampieri); Thunbergia Gibsoni; Morning Glory (Ipomoea); Perennial Pea; Petunia Tall Mixed.

**Dwarf Plants:** Ageratum Imperial Dwarf Blue; Alyssum (all varieties); Balsam; Cheiranthus; Cuphea; Linaria Fairy Bouquet; Lobelia (all varieties); Nemesia Compacta Grandiflora Mixed and Blue Gem; Mignonette; Nasturtium Dwarf Double Globe Mixed; Pansy; Portulaca; Primula; Torenia; Viola; Verbena; Virginian Stock.

The suggestions given provide a wide variety of colours, some in mixtures, and plants that do well in both sun and semi-shade. Climbing plants, such as Morning Glory and Perennial Pea, it should be noted, are vigorous growing plants and would need a drop of 6 or 7 feet, otherwise they would be likely to become entangled with the plants below. While not regarded as trailing plants, Tall Petunias will spill over the edge of the box and provide a most colourful display throughout the Summer.

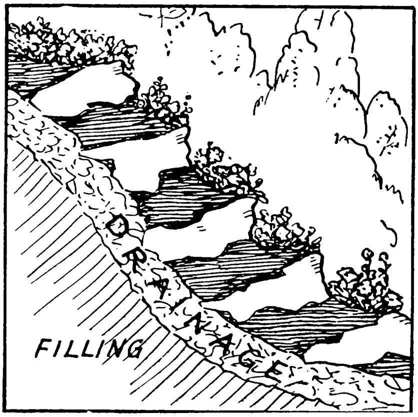
**Care of the Plants:** Naturally, the small amount of soil in a box will dry out more quickly than that in the garden, and frequent watering is necessary. If, however, the soil remains soggy, it is no doubt due to poor drainage and this must be attended to, otherwise plants cannot thrive. If it is considered that drainage is sufficient, yet plants appear to be slow, give them a dressing of No. 12 fertiliser, allowing about 1 tablespoonful to a box 3 feet long. Distribute this around the plants and water thoroughly.

## ROCKERIES.

As was indicated in the introduction of this chapter, rockeries should be part of the garden plan. Sloping ground, of course, makes the ideal site, for it lends itself to a natural formation of a rock garden. Our bushlands and gullies are full of examples of how plants thrive between rocks and on rock ledges. It will be noted, too, that there is no regular rock formation, and a garden rockery should produce a similar effect.

If no suitable sloping land that can be transformed into a rock garden is available, it will be necessary to fill soil to form the basis of the plan. It is, however, a mistake, except in exceptional circumstances, to merely make a mound around which the stones are distributed. Rockeries can be made against walls and foundations, and should gradually build up to their full height. They can also be built against garden ornaments, such as a large, raised fish pond. In other words, there should be or seem to be some reason for it being there.

**Construction:** In selecting the site, the aim should be to have a warm, sunny situation, for most rock plants, with some exceptions, are warmth-loving plants.



*A sectional view of rockery showing how rocks are sloped into drainage material.*

**Drainage:** The first essential is good drainage. This is a fairly simple matter on sloping ground because all that is usually necessary is a good 2-3-inch layer of cinders or coarse material laid down as a base, and then, starting from the bottom, a 3-4-inch layer of good soil is again laid over this. At the same time the rocks are placed in position ensuring that they tip slightly inwards to the centre of the rising crest. This ensures water is caught and taken straight to the roots of the plants, whereas it is easy to see if the rocks have an outwards fall, moisture would be lost and at the same time there would be a continual loss of soil.

If a rockery is being built against a wall or even in the form of a mound, it will be necessary to build the centre core of filling. This can be almost any soil, and over this the drainage material is spread. After the laying of the rocks, the surface soil is the same as already described.

It is essential when packing the soil around the rocks that this be tamped hard so that they are held in place and there will be no shifting later on. Large, irregular rocks are preferred and the heavy ends of these are placed towards the centre of the mound. Starting from the bottom, each row recedes a little back from the first but, now and again, a few bold rocks can project here and there to give a more natural outline. The top should not be finished in a fine crest, but preferably left round and irregular.

**Soil:** Any good garden loam is suitable for filling in between the rocks, but most rock plants resent large quantities of manures. For preference, use a mixture of 2 parts loam, 1 part sand, and 1 part compost. If compost is not available, leaf mould will do equally as well.

**Rockery Plants:** There are a number of plants suitable for rockery culture that can be grown from seed. Some are annuals, and other are perennials, and the following are amongst the most popular:—

**Annuals:** Ageratum; Alyssum; Eschscholtzia; Linaria; Lobelia; Phlox Nemesia Dwarf; Petunia Dwarf; Portulaca; Virginian Stock.

**Perennials:** Alyssum Saxatile; Asparagus Sprengerii; Anemone (bulbs); Aubretia; Cheiranthus; Nierembergia; Mimulus; Pentstemon; Polyanthus; Verbena.

There are, of course, numerous perennial plants which are not usually grown from seed, but are available for purchase most times of the year. Here are just a few of them: Billbergia Nutans; Chorizema Cordatum; Cineraria Maritima; Convolvulus Mauritanicus; Fuchsia Procumbens; Gazanias; Hypericum Patulum Henryii; Lantana Chelsea Gem; Lantana Drap D'Or; Mesembryanthemum; Nepeta Mussini; Punica Nana; Statice Purple Cloud; Thalictrum; Vinca Variegata; Cotyledon; Sedums.

## WALL GARDENS.

These are somewhat similar to rockeries in construction but instead of the stones being placed on a sloping mound so that they more or less follow its lines, they are made practically vertical and the soil filled in behind them. However, the wall should tilt slightly backwards, keeping the face of the rocks more or less in line. Between each rock there should be at least one inch of soil making a crevice in which the plants can grow. It is remarkable how many plants will thrive in these crevices providing they are able to throw their roots well back through the rocks and into the soil behind them.

Starting at the bottom, the first rock is sunk so that the top of it is just above the level of the ground or path and a sufficient number of rocks to complete the length of the wall are then laid side by side in this fashion. An inch or so of soil is then distributed over the top of these rocks and the filling or loam brought up level behind them. Another row of rocks is then laid and the process repeated. The top of the wall can be finished in rock or the soil drawn partially over it so the plants can be grown near to the edge. To make a strong constructional job, some rocks should be longer than others, so that they "key" into the filling behind.

Wall gardens have quite a number of uses and particularly where soil is to be dug out for paths leading to lower ground or for driveways. How much better is it to plan these with natural stones, in between which plants bloom, than to merely erect a rather unnatural concrete slope or brick wall? If the path or drive can be made of crazy paving the effect is more pleasing and "natural." Where rock is not available, rough concrete blocks can be used and paint them over with a mixture of neat cement and water. With a few months' exposure they will look like natural rock.

Plants suggested for rockeries can also be used for wall gardens, and they require similar treatment.

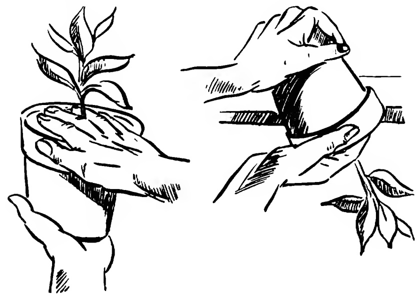
*Note the natural-looking formation in the rock placement of this rockery.*

## POT PLANTS.

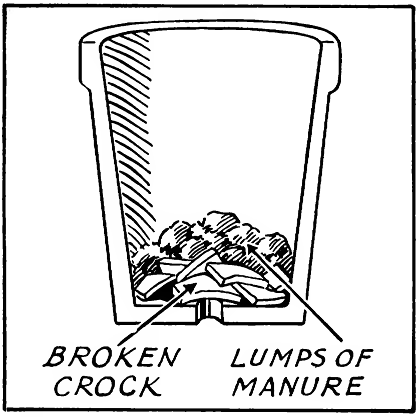
With our wide spaces and in some cases fairly generous garden areas, pot plants are not nearly so plentifully grown here as in other countries. Moreover, our climatic conditions, which in most districts allow for plants to be grown outside for the whole year, are not inducive to house plant culture. Nevertheless, there is a tremendous amount of interest in the growing of pot plants, and many gardeners would engage in it if they knew how fascinating it can be.

Contrary to what might seem correct, small plants do not need a lot of soil and must be started in small pots. They are changed to larger pots as they grow. This is usually indicated by the extent of the root system which, when it reaches the outer edges of the soil in the pot, the plant is ready for another move. Very small plants are started in 2-inch pots, moved to 2½-inch, then 4-inch, and finally 6-inch. Of course, in these earlier stages, other containers can be used, especially if they are first grown outside for bringing into the house when they are full size. Small tins are suitable for some young plants.

Practically all pot plants need good drainage, and the bottom of the pot should first be covered with some coarse material, such as cinders or some broken crockery. Suitable soil is the next item and it is hardly likely that ordinary garden loam will be good enough. It is necessary then to make a mixture such as 2 parts good loam, 1 part sand, and 1 part sifted leaf mould, or old, dry cow manure. This mixture can be used both for young plants and fully-grown specimens.



*To take a plant out of a pot with the least possible damage place the fingers over the soil with the tips inside the rim. Turn the pot over and tap the rim on the edge of a bench or board.*



*Good drainage is essential when potting.*

If pot plants are to be grown from seed, these are usually raised in seed boxes or on the surface of a well-filled 6-8 inch pot. The young seedlings are then transferred at an early stage to the 2-inch pots, and so on. Plants can also be purchased in pots fully grown and, of course, very little trouble or labour is involved.

If, however, the plants are raised at home, or propagated from cuttings, they must have light, good ventilation, food and ample moisture. Usually such plants are raised and partly grown in sheltered corners of the garden, in frames, or bush houses. If grown in the house, however, it will be necessary, especially in Winter, to have sunshine for at least four hours a day, and should be turned round regularly to ensure uniform growth.

Once plants are established and have bloomed, it may not be necessary to re-pot them for two years, and there should be no hurry to do this. Some plants do better when they are slightly pot-bound, that is, their roots reach the sides of the pot in great numbers and even cling to it. Providing all other conditions are normal, and the plant has always thrived, it may be an indication that re-potting is necessary if it shows a yellowing of the foliage and roots perhaps protruding through the drainage holes.

Probably the most frequent cause of failure is due to wrong watering and whilst the soil must be kept moist, it should not be constantly soggy, nor should it dry out completely. Always ensure that surplus water has free drainage. A dry surface of the soil does not always indicate watering, and moisture can be looked for at least ½ inch beneath the surface. Apply water direct to the surface of the soil, not by sprinkling it, but by pouring it from a small can or old kettle. Another method is when pots are very dry to stand them in water within about an inch of the surface and leave them until moisture appears at the top. After this, take it out of the water and allow it to drain freely.

Many pot plants can be grown from seed and here are some of the more popular varieties: Balsam; Begonia—Tuberous and Fibrous Rooted; Boronia; Calceolaria; Ornamental Capsicum; Cineraria; Coleus; Cyclamen; Gloxinia; Primrose; Primula; Schizanthus.

## GLASSHOUSES.

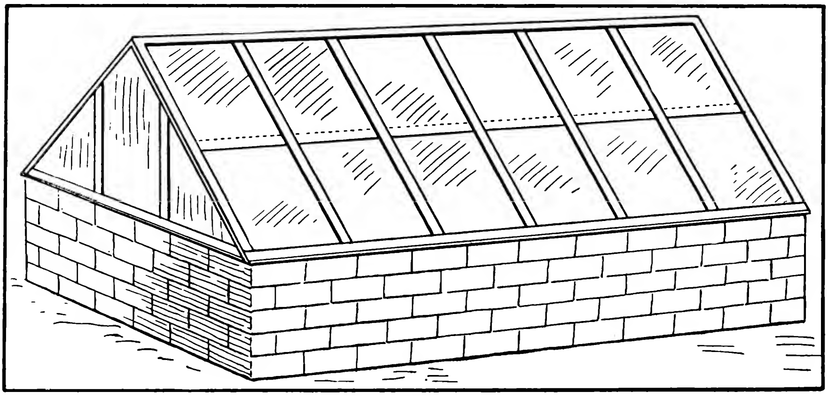
The use of these in Australia is not so necessary as in cold countries. There has, however, of late years been some interest shown in the culture of Tomatoes under glass. Nevertheless, this is confined almost entirely to commercial growers, and the home gardener is not usually interested. However, a small glasshouse in the home garden can prove most useful providing it is used properly.

The mistake of having plants too far from the glass is a common one; stages (or benches) should be so constructed to allow about 3 feet from plants to glass roof. The following are very suitable dimensions for a small glass-house with a centre path and side stages. With an ordinary carpenter's rule anyone will be able to draw out a plan and elevation from the figures given here:—

| | |
|---|---|
| Width across (outside measure) .. .. .. | 11ft. 4ins. |
| Height at ridge .. .. .. | 8ft. |
| Height at eaves .. .. | 4ft. 6ins. |
| Height of stage from floor | 2ft. 9ins. |
| Width of stages .. .. | 3ft. 9ins. |
| Width of centre path .. | 3ft. 7ins. |
| Length of house .. .. | 17ft. 6ins. |

Sometimes they are built in the form of a lean-to against a house or wall, and in fact any feature of the garden can be adapted to the building of a glasshouse. For instance, it can continue on from a shed or form a conservatory to part of the house. However, when this method is followed, care should be taken that the portion chosen for the glasshouse receives plenty of light and the morning sun. Artificial heating is not usually necessary, except in cold climates, unless very delicate tropical plants are to be grown. A heating stove with pipes would have to be installed by a tradesman.

There are other features to consider, and we would advise intend-



*A simple yet very useful type of permanent glass frame.*

ing builders of glasshouses to write to their local Dept. of Agriculture for any information that they might have. The Sydney Dept. of Agriculture, for instance, publish a very comprehensive book on this subject.

A number of firms in Sydney and Melbourne and other capital cities cater for the needs of intending builders. They will be pleased to furnish full details of specifications and particulars on request.

## PERMANENT GLASS FRAMES.

Glasshouses are necessarily costly to erect, and they do not hold as many plants in proportion to their size as a permanent glass frame. Frames for cultivating pot plants should have brick or concrete walls, say, two or three feet high. These walls should have small inlets for ventilation every few feet, which for preference can be opened or shut as desired. On the top of the walls a wooden frame should be fitted. This can be either in the form of a sloping sash-light, or built with a ridge roof with the sashes hinged to the ridge. Whatever pattern is adopted, it is necessary to have sufficient slope to run off rain and the condensed moisture which always gathers on the glass. The lights should be readily movable, to allow of the plants being easily handled and the frame ventilated.

The plants can be grown either in the natural soil or in pots. In the latter case we recommend that a light staging be put in to hold them, say, six inches above the ground level, to allow free drainage and a better circulation of air. The more open this stage is the better for the plants. The directions given for cultivating plants in glasshouses are equally applicable to growing them in frames.

## BUSH-HOUSES.

So many failures in the cultivation of plants in bush-houses are due to the faulty construction of the houses, that we believe some suggestions for a model structure should be of interest to home gardeners. The main objects of a bush-house are to subdue the intense sunlight, to keep a cool, moist atmosphere around the plants, and to protect them from hot or dry winds. It may be substantially built or otherwise, but the main characteristic should be a low roof, with only just sufficient fall to carry off the drips, a good sunny position, and protection on windward sides.

Its size may be anything over 20 feet square, but, if larger, it would be better to make it longer, say, 20 by 30 feet. We do not recommend a smaller house, as it would not be effective. The height should be 6 feet at the wall plates, and at the ridge 1½ to 2 feet higher and not more, except for houses where Palms, Tree Ferns and Dracaenas are to be planted out.

It may be latticed or covered with brush on the north and east, but should be closely boarded on the south and west and, indeed, any side liable to strong winds, or it may be partly surrounded with a roughly built brick, concrete or stone wall. The roof should consist of 4-inch wire netting laced with the top of ti-tree, in pieces, say, 2 feet long, or with wires tightly stretched a foot apart and laced with ti-tree, in pieces 3 to 4 feet long. Netting is best, but takes considerably longer to put on. In putting on the brush always commence from the eaves, so that the various layers overlap one another, and the drip is carried off as in a thatched roof.

Before putting on the brush, place it out in the sun to dry, and then shake all the foliage off, as it is much easier then to regulate the required amount of shade. Do not overshade. This is really a greater evil than too little, and on no account allow any creepers to grow over the roof. In the Winter time all the sun available is required, and it may be necessary at times even to thin out the brush or ti-tree.

A bush-house can be much improved by the use of hanging baskets from the roof, but too many of these will tend to shade the ground. It is not recommended that all bush-house subjects be grown in pots, and a good large bush-house will look much better if the plants are grown mostly on the ground with paths in between. The soil should be well-prepared and special attention

*A well-appointed Bush-House, with excellent provision for shade.*

paid to the notes in this book on the subject of trenching and drainage.

A useful layout for the bush-house is to have a 3-ft. path right around the sides with a central bed, which is then planted with all manner of suitable bush-house plants. The following varieties grow from seed :—

Calceolaria
Impatiens
Primula
Cyclamen
Cineraria
Mimulus
Polyanthus
Boronia
Coleus
Gloxinia
Schizanthus
Balsam
Begonia (Tuberous and Fibrous Rooted).

Some of these are also obtainable as plants, but the following varieties are ones of which it is very seldom possible to obtain seed and it is necessary to purchase plants:—

Rex Begonias
Azalea
Marantas
English Primrose
Fuchsias
Orchids
Many different varieties of Ferns.

Some varieties are more easily and generally raised from bulbs or tubers. They are :—

Cyclamen
Gloxinia
Freesia
Billbergia
Spanish Iris
Achimene
Clivia
Lily of the Valley
Begonia (Tuberous Rooted).

Where, owing to tree roots or other reasons, it is not convenient to grow plants in the natural soil, a good method is to grow the plants not required for house decoration in soil on stages. This should be a light sandy, fibrous compost with plenty of crushed charcoal, not deeper than 6 inches, and well drained with crocks or charcoal; perfect drainage is essential.

## ORCHIDS.

The popular belief is that Orchids are expensive, delicate and difficult to cultivate. While this may be true of some of the rarer species, there are quite a large number that may be grown on a verandah or in an ordinary bush-house, provided the plants receive plenty of light, but with a few exceptions, not the direct rays of the sun.

The following hardy species are recommended :—Bletia, Coelogyne, Cymbidium, Cypripedium (Slipper Orchids), Dendrobium, Thunia and Vanda. Plants of these Orchids are available at all seasons and we invite you to write to us for whatever varieties you may require.

The advantages of growing these hardy Orchids is that a specially heated glasshouse is not required and the prices are not high when compared with the rarer species requiring more delicate treatment.

**Brief notes on the more well-known species are given on pages 181 and 182.**

## **Orchids** (continued)

### BLETIA.

These terrestrial Orchids are extremely hardy and may be grown in a sunny spot in the bushhouse or a sheltered sunny situation in the garden. If grown in pots, ordinary rich garden soil is quite suitable.

### COELOGYNE.

This is an extensive genus, but we offer the hardiest and most popular variety only, which should be grown preferably in shallow earthenware pots or pans. The potting material should consist of three parts of todea fibre and one of sphagnum moss, mixed with lumps of charcoal and broken crocks.

Coelogyne Cristata thrives best in a cool position in the bush-house, and should be watered regularly when making growth. When watering, care must be taken that water does not lodge in the young leaves, as it is liable to rot them.

### CYMBIDIUM.

This genus of Orchids is one of the most popular, which is not surprising, as the plants may be grown in the open, and the flowers, which are freely produced, are very long-lasting, remaining in perfect condition on the plant or in water for several weeks. Some varieties, particularly Eburneum, are delightfully scented.

The plants should be protected from direct sun and grown for preference in small wooden tubs or large pots, using a compost of one half good leaf mould and one half old well-rotted dairy manure, together with a liberal addition of charcoal and finely broken crocks. Ample drainage should also be provided. The flowering period extends from mid-Winter to early Summer.

### CYPRIPEDIUM.

Cypripediums or "Slipper Orchids" form a well-known and popular group. They are mostly Winter flowering, thus providing blooms when flowers are scarce. The plants may be grown in well-drained pots in a mixture composed of three parts of finely chopped todea fibre and one part of finely chopped sphagnum moss. To this should be added charcoal and crushed crocks. The plants should be shaded from the direct rays of the sun and should be well watered during the Summer months but very little in the Winter.

### DENDROBIUM.

This extensive genus grows naturally under a wide and varied range of climates. Most varieties of Dendrobium are hardy and can be grown under ordinary bush-house conditions.

Dendrobiums require to be potted in a mixture of three parts todea fibre to one part of sphagnum moss, and the pots should be filled to half their depth with broken crocks and/or charcoal in large lumps. Use the smallest pot that will hold the roots.

The plants should be watered freely except during the Winter, when the plants should be allowed to rest, in order to ripen the bulbs for Spring flowering.

*The beautiful Cymbidium Orchids are amongst the most easily grown and are more readily obtainable than other varieties.*

## **Orchids** (continued)

### EPIDENDRUM.

This species requires a hot, sunny position in a bush-house, or may even be grown outside in a sheltered, sunny situation against a wall. The plants grow vigorously and hard pruning encourages the growth of strong side shoots and flowers.

### SELENIPEDIUM.

This genus, which is indigenous to South America, closely resembles the Cypripediums and requires the same cultural treatment. The flowers, however, are produced singly but in succession on the same stem.

### VANDA.

Vandas are easily cultivated and are very attractive. For preference they should be grown in large pots, using a compost of three parts of sphagnum moss and one of todea fibre. About one-third of the pot should be filled with large pieces of broken crocks and charcoal and some of this material should also be mixed in with the compost. The tops of the pots should be covered with fresh sphagnum moss, and this should be heaped up around the stalk. The plants should be watered freely in the Summer but allowed to rest during the cooler months.

### THUNIA.

In habit of growth these plants somewhat resemble bamboo, as the pseudo bulbs attain a length of up to 3 feet. Thunias should be grown in a pot of old well-rotted cow manure, covered with a thin layer of coarse sand. A stake should be inserted in the potting mixture and the pseudo bulb tied to it, with the roots resting in the sand. The new growth, which produces the flowers, will appear with the advent of warm weather and the roots will penetrate the sand.

These plants grow best where they receive ample sunlight, either a sunny spot in the bush-house or a sheltered, sunny place in the open. Water should be given freely from the commencement of root action until after flowering, when the foliage will commence to decay, after which they should be kept cool and dry until the Spring.

### IMPORTANT.

Notes on Orchids in this book have been included as a very brief guide for home gardeners, but those who intend to embark on this branch of horticulture are advised to obtain one of the authoritative books on the subject.

Unfortunately, owing to tremendous demand and also growing difficulties, the majority of varieties are unavailable at the time of going to press and are likely to be so for some time. Cymbidiums, however, are usually available.

(Continued from page 172)

**GLOXINIAS.** They are tropical plants so, except in very hot districts, for best results they should be grown under glass. We supply varieties which contain a full range of all colours, including tiger and spotted varieties. Available May to September. See page 110 for general notes.

**DAFFODILS.** One of the best Daffodils for all purposes is the well known King Alfred. We have many other varieties of all types in our special bulb list which is available during March. Whether your interest is in the large Trumpets (yellow or bicolours), the lovely Leedsi and Incomparabilis, or one of several other forms, you should try to include at least some of these lovely flowers in your garden.

## CHAPTER 12.

# SHRUBS, ORNAMENTAL TREES & CLIMBERS.

**It is fairly safe to say that no soil is too poor, nor any position too exposed, to grow a shrub or tree of some kind. The cause of many failures is choosing the wrong variety and hoping that, for instance, a tropical shrub will succeed in a cold mountain district, or vice-versa. Many trees do adapt themselves to a variety of conditions, but in general they should be chosen with some thought as to the situation in which they are to be grown. (See table of selected shrubs on page 187.)**

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When choosing your varieties consideration should be given to the requirements for the particular location, as, apart from their ornamental value, trees, shrubs and climbing plants are grown for a variety of reasons.

- For privacy.
- For the shade they give.
- To border a drive or path-way.
- To screen unsightly buildings, fences, or views.
- To enhance a particular view which can be focussed between two trees, or groups of trees.
- To form a hedge, either low, medium, or high. (See table of Hedge Plants, page 190).
- To make a wind break, generally without encroaching too much on the garden space.
- For the flowers they display, or brilliant foliage.
- To screen the foundations of a house or building.

These are perhaps only a few of the reasons why we grow trees and shrubs and, of course, their permanency is a big consideration. As a background to the flowering annuals, dwarf shrubs are unsurpassed, and a garden never lacks some greenery or perhaps blossoms if the borders are furnished with flowering shrubs.

Shrubs and climbing plants should be selected with care. Some are slow growing, others rapid; some flower and some do not; and some have rampant growth, whilst others are "tidy" and neat. To grow one or the other in the wrong positions might completely spoil the whole effect and mean the removal of the plant later on.

Not infrequently we see where trees have been planted that are far too tall and big for their position. Always check on the final height to which a tree will grow before planting. Make certain also whether it is

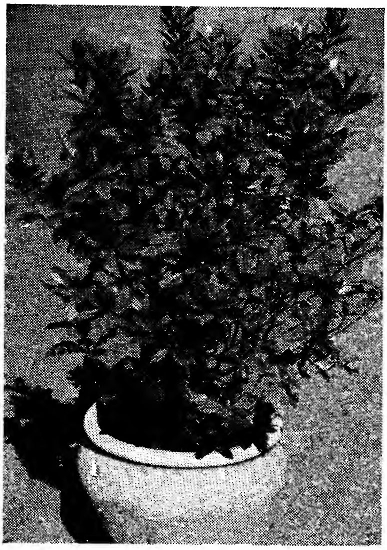
*In suitable places tall Azaleas can be used as a hedge for screening off other parts of the garden as in this case. The branches in the extreme left-hand corner are those of the Flowering Prune.*

evergreen or deciduous. The latter, of course, lose their leaves during the Winter and very often this is considered an advantage because, whereas their shade is welcome during the Summer, all the sunshine possible is needed during the Winter months.

## BRIEF NOTES ON THE CULTURE OF TREES AND SHRUBS.

If trees and shrubs have been selected correctly for the climate and positions in which they are to be grown, it is then usually necessary only to plant and give them ordinary care for success. Of course, each shrub and tree has its special likes and dislikes but generally speaking, the details of cultivation are very similar. To give an indication of the requirements of the many hundreds of varieties would be impossible in a book of this nature and the best plan is to make your selections and then enquire for any special details about cultivation. Gardeners intending large plantings are well advised to visit their nearest Botanical Gardens, make a study of the plants and obtain any information they can from the Curator. There is nothing like on-the-spot knowledge.

**When Will You Plant?** Experience has shown that, providing a reasonable amount of water is available, most trees and shrubs are best planted during the warmer months. Nursery-grown plants being grown in pots or tins are not impaired by transplanting if this is done without any disturbance to their root system during planting.



*Gardenias make splendid ornamental tub specimens.*

At one time, Winter was recognised as practically the only time for planting trees and shrubs, but with many of the semi-tropical plants, it is the worst time and these must go out in the warmer weather. Some examples are :—

Jacaranda, Hibiscus, Lantana, Gardenia, Bougainvillea, Antigonon, Acalypha, Solanum Wendlandii, Tree Tomato, Frangipanni, Ficus Hillii, Thunbergia, etc.

In districts where there are moderate to severe Winter frosts, these are likely to be damaged if planted in the Winter but once established are seldom harmed and the early planting allows them to make good growth before the Winter sets in.

### AFTER THE PLANTS ARRIVE.

Whether they are to be planted during Summer or Winter, it is important that Trees and Shrubs be handled with care and given every chance to establish themselves in their new positions. Plants sent from our warehouse are already well established in pots and other containers, **and it is therefore only a matter of transplanting, without any disturbance, the ball of soil and roots so that the plant does not receive the slightest check.** After the parcel is undone, thoroughly water the soil in the pots and let any surplus drain away.

Our standard nursery-size plants are usually sent in paper pots to lessen the heavy freight costs incurred with porcelain and clay pots. The paper pots being heavily waterproofed do not rot away quickly and the practice of leaving the plants in them is not a good one.

To remove the plant from its pot, completely cover the surface soil with the hand, the stem of the plant resting between the second and third fingers. Tip the pot upside down and if the soil has been sufficiently moistened, it will remain firm around the root system of the plant.

*A recent development in Poinsettia is the double variety.*

### ADVANCED PLANTS.

We receive many requests for advanced specimens and these are usually despatched in tins. The theory that a tin will soon rust away and the roots quickly gain access to the soil is not borne out in practice. On the contrary, the tree may be prevented from obtaining sufficient moisture and nourishment for some months, with a subsequent loss of growth. We therefore recommend ENTIRE REMOVAL of the tin and the surest way of doing this without disturbing the roots is to cut down the four corners of the tin, lifting out the tree complete with soil with a spade.

Occasionally advanced trees are sent "in ball" or bagged, which means that the soil surrounding the roots is securely held with a bag. This need not be removed for it will quickly rot away, but the string with which it is tied around the stem should be cut, otherwise it is likely to grow into the bark as the tree matures, and so weaken the trunk. Thoroughly moisten the ball of soil before cutting the string, soaking it in water for five or ten minutes.

### SOME NOTES ON PLANTING.

A frequent cause of failure in the planting of trees and shrubs is the desire to disentangle the roots after they have been taken from the pot. Many plants, particularly Bougainvilleas, Geraldton Wax, Eucalypti, Acacias, and all Australian native plants resent this disturbance and fail to respond after they have been planted. The holes should be prepared before taking the plants out of the pots or tins. For pot-grown plants dig the holes about 9 inches across, according to the size of the pot; for advanced plants make the holes 12 to 15 inches deep (according to the depth of the sub-soil) and 15 to 18 inches across. If garden soil is poor, some well-rotted manure can be incorporated with the loam. As already emphasised, the ball of soil should be left intact. It should be set well down into the hole so that the point where the stem of the tree emerges from the soil is about 2 inches to 3 inches lower than the normal level of the ground. Carefully draw the soil back towards the tree, pressing it with the hands, and when thoroughly consolidated tramp lightly with the feet. Provide a good stake, to which the young plant should be tied, water well and cover with a loose surface of dry soil after the water has soaked away.

For Summer planting, it will be found that a mulching of dry leaves or grass will prevent evaporation and a few ferns or twigs can be used to shade the stems from the sun. In Winter planting similar protection will prevent frost damage to young "evergreens."

If the tree has been correctly

*An advanced plant of Retinospora Obtusa Crippsii.*

planted there should be a basin-like effect around the stem, enabling the moisture to drain towards the roots. Some gardeners create a tent-like effect with the soil banked around the stem of the plant, and not only is this harmful, but prevents the water reaching the main roots.

### PRUNING.

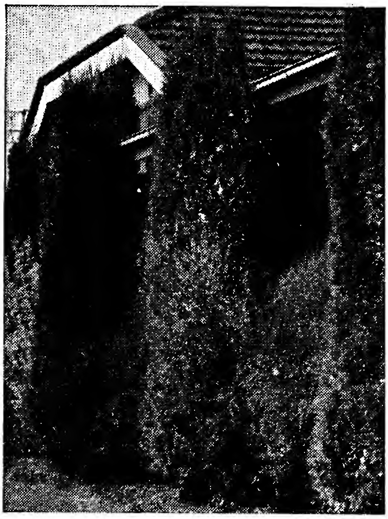
It is unfortunate that many otherwise decorative trees and shrubs are spoilt by lack of, or incorrect, pruning. It is a most important aspect of their culture, inducing better shape and a greater number of blooms.

Some simple rules to remember:—

- If trees are to be allowed to grow tall, the leading shoots should never be pruned, but all trimming is confined to keeping the lateral branches in the proper proportion to the rest of the tree.
- If a low spreading effect is desired, all upright growing shoots should be cut back regularly to induce side growth. Eventually the plant will assume the desired shape.
- **Flowering Fruit Trees:** Peaches, Cherries, Apples and Plums should be pruned after they have finished blooming and should not be allowed to set which is very subject to fruit fly attacks.
- Flowering shrubs, with a few exceptions, should be pruned regularly after each flowering, thus assisting the plant to produce a better quality crop of flowers the next flowering season.
- Cassias, Lagerstroemias and similar plants which produce their flowers on new season's wood are best pruned during Winter, cutting them back to within three or four eyes of the previous season's growth. If too much, or too many, of the long growths are allowed to remain, the plants will grow tall and lanky and will be very easily damaged by prevailing winds.

  To prune a shrub (or tree) is to rejuvenate it; the plant is relieved of a great deal of unnecessary wood and can therefore produce better flowers, or fruits, from the fewer remaining eyes.
- Hydrangeas are pruned in the early Autumn, and Poinsettias after they have finished flowering at the end of the Winter months.
- Non-flowering shrubs should not be allowed to grow out of proportion, and, with the desired shape kept in mind can be regularly pruned so as to produce a uniform plant.

*Nandina, or Sacred Japanese Bamboo.*



*Cupressus Torulosa used as a verandah screen. It also makes a splendid tall hedge or wind-break.*

## SOME SELECTED TREES AND SHRUBS.

The height to which a tree or shrub grows, whether it is evergreen or deciduous, and whether it is grown for its flowers, foliage or berries, are important details for the home gardener to know. Full descriptions of most popular trees and shrubs are to be found in Yates' Book of Plants, a copy of which will be gladly posted free on request. However, for handy reference, we print below a table of both trees and shrubs selected for their all-round adaptability as well as beauty and hardiness. In other words, the table is designed to help the newcomer to gardening to make a selection without having to choose from what might seem a rather bewildering and lengthy list. It is, of course, much better if one can actually see the plants growing elsewhere before choosing, but this is not always possible. We believe that this guide will prove handy to many who are at a loss to know what to plant. In the fourth column of the table under the heading "Suitable For," there are certain symbols which indicate the most suitable district as follows:—

E.—Evergreen. D.—Deciduous. A.—Suitable for practically all climates. C.—Suitable for N.S.W. Coast and similar climates where frosts are not severe. TC.—Indicates varieties recommended for sub-tropical coast. T.—Recommended for cool highlands. In.—Suitable for inland areas, hot Summers, and heavy Winter frosts.

| VARIETY | Evergreen or Deciduous | Height | Suitable for | Flowering Season | REMARKS |
|---|---|---|---|---|---|
| | | TREES. | | | |
| Acacia Elata | E | 35 ft. | A | Summer | The Cedar Wattle; excellent for shade. |
| Acacia Podalyriaefolia | E | 20 „ | A | Winter | Q'land Silver Wattle; large blooms and long flowering. |
| Agonis Flexuosa | E | 30 „ | A | Summer | White flowers; weeping habit. |
| Araucaria Excelsa | E | 100 „ | TC-C | Foliage only | The Norfolk Island Pine. |
| Brachychiton Acerifolia | D | 50 „ | TC-C-In | Late Spring | Illawarra Flame tree; scarlet flowers. |
| Calodendron Capense | E | 40 „ | TC-C-In | Summer | Cape Chestnut; flesh coloured flowers. |
| Cupressus Torulosa | E | 25 „ | A | Foliage only | Excellent for windbreaks; plant 3 feet apart. |
| Eucalyptus Ficifolia | E | 20 „ | C-In | Summer | The Scarlet West. Aust. Gum. |

| VARIETY | Evergreen or Deciduous | Height | Suitable for | Flowering Season | REMARKS |
|---|---|---|---|---|---|
| **TREES** (Cont.) | | | | | |
| Eucalyptus Sideroxylon Rosea | E | 30 ft. | A | Summer | Pink flowering Ironbark; graceful, drooping habit. |
| Fraxinus Raywoodii | D | 30 „ | T | Red Foliage | The Claret Ash: autumn leaves. |
| Prumnopitys | E | 25 „ | A | Foliage only | A splendid shade or street tree. |
| | | SHRUBS | | | |
| Abutilon Souv. de Bon | E | 6 „ | A | Spring Summer | Orange flowers and silver variegated foliage. |
| Azalea Indica (Evergreen type) | E | 2-6 „ | C-In | Spring | Tall and dwarf varieties as well as doubles and singles. |
| Berberis Thunbergia Atropurpurea | D | 4 „ | T | Spring | Red berries in autumn and purple foliage. |
| Callistemon Lanceolatus | E | 10 „ | A | Spring | The Bottle Brush; scarlet flowers. |
| Ceratopetalum Gummiferum | E | 12-30 „ | T-C | Summer | The N.S.W. Christmas Bush. |
| Cotoneaster Serotina | E | 10 „ | C-T-In | Winter (berries) | Bright red berries excellent for decoration. |
| Cupressus Lambertiana Erecta Aurea | E | 12 „ | A | Foliage only | A beautiful golden Cypress. |
| Euonymus Japonicus Aureus | E | 6 „ | A | Foliage only | Golden foliage. |
| Hibiscus (Evergreen type) | E | 5-10 „ | TC-C | Summer | Many different varieties and colours available. |
| Jasminum Fruiticans | E | 10 „ | A | Spring | Sweetly scented yellow flowers; very hardy. |
| Juniperus Hibernica | E | 12 „ | A | Foliage | Irish Juniper; column-like growth. |
| Spartium Junceum | E | 8 „ | A | Early Spring | Yellow, pea-shaped flowers. |

## HEDGES.

A hedge has many purposes. It can be used to screen an unsightly background or fence, and afford shelter from wind. It can take the place of a fence entirely, or serve to divide part of the garden, such as the vegetable section from the flower portion. It can be tall—up to 15 or 20 feet, or as low as 18 inches, depending on the variety grown and the purpose for which it is intended. Unfortunately, many hedges are planted without thought at first, and the gardener soon finds, to his dismay, that they are either giving too much shade, or robbing nearby plants of their food. Most lawn grasses do not grow well near vigorous hedges, leaving a bare patch around them. Nevertheless, they are a most useful part of the garden furnishing and, planted with some thought, can enhance its appearance.

Sometimes it is desired to plant a temporary, quick-growing hedge, while the slower growing and less vigorous variety is making headway. When it reaches the desired height, the quicker growing plants are removed.

**Planting:** Hedge plants are planted much in the same way as trees and shrubs, and because some of them are spaced no more than 5 feet apart a continuous trench is sometimes dug up to 3 feet wide. The top soil is thrown out and the sub-soil broken up but left in its place. Before replacing the top soil, distribute a double handful of Blood and Bone to each square yard along the trench, and also, if possible, incorporate some rotted manure. Return the top soil to the trench, mixing leaf mould or compost with it if available. Heavy soils can have some sandy loam added, although this is not altogether essential, and very light sandy soils can have heavy loam added. Distance for planting between hedge plants varies considerably with the variety grown. The tall "Cypress," such as Cupressus Torulosa might be spaced from 4-6 feet apart, whereas the less vigorous specimens, such as the small Privet (Ligustrum Pubescens), will be no more than 2 feet apart (see Table). Set them in straight lines with string stretched along the centre of the dug ground and give equal spacing. As with all shrubs and trees, plant a little deeper than they grew at the nursery, and which is indicated by the line of soil around the stem. Water thoroughly after planting and maintain regular watering until the plants are well established.

**Pruning:** Hedge plants should be allowed to grow unpruned until they reach the desired height. They should then be trimmed evenly along the top, if necessary, by stretching a tight string along the whole length and using this as a guide.

Many gardeners no doubt wonder why foliage frequently fails to grow near the ground and the whole effect is rather spoiled by a bare 12 inches or so up to where the foliage starts. Generally this is caused by wide pruning at the top, narrowing to the base and preventing the full access of sunlight. To encourage foliage to grow right from the ground, trim your hedge slightly narrower at the top than at the base.

**General Care:** Providing plants receive ample water in dry weather and they are suitable for the climate in which they are grown, not a great deal of trouble is involved apart from regular and careful trimming. A dressing of suitable plant food once a year, allowing about ½ lb. to every 10 feet of row, will help to maintain good, clean growth. This should be applied during the Spring, and in the Summer months plants will always benefit from a good mulching. Once plants attain a good size, this may not be so important because they not only shade their own roots, but a certain amount of fallen foliage finds its way into the soil and provides humus.

All dead and dying wood should be immediately cut out and old hedges that appear to be losing foliage or have a general unhealthy appearance can often be revived by hard trimming back to the base and applying a liberal dressing of fertiliser.

**Varieties:** All sorts of plants, trees, and shrubs can be used for hedge planting. Not all hedge plants are regularly clipped and trimmed, such as we are used to doing to Privet or Plumbago, and nowadays more use is being made of flowering shrubs which, when they are fully grown, attain the necessary height. These can, of course, be clipped and trimmed if desired but, in doing so, the quantity of blooms is considerably reduced. Notable examples of flowering shrubs used for hedges are Diosma, Nerium (Oleander), Veronica and Escallonia.

Roses make excellent hedges, but it is necessary to grow those of equal height or one variety only. Suggested varieties will be found on page 161.

As already indicated, special attention should be paid to the ultimate height a hedge is required to grow, and whether the roots are likely to interfere with the flowering borders or the vegetable garden. Some trees, such as Poplars, require to be as much as 15 or 20 feet away if other plants are not to be affected. There should also be some thought as to whether drains are likely to be damaged. Many of these vigorous trees will choke drains with their roots very rapidly and have been known to seek water up to 15 feet away.

## SOME HARDY HEDGE PLANTS.

In the list below is a selection of suitable hedge plants which are both hardy and ornamental. In each case, the maximum height to which they grow is given but, of course, with trimming and clipping, most of them can be kept much lower than this if required.

### DWARF GROWING HEDGES.

| Variety. | Height. |
|---|---|
| Abelia Longituba | 4 ft. |
| Berberis Thunbergii Atropurpurea | 4 ft. |
| Buxus Sempervirens (Dwarf Box) | 4 ft. |
| Diosma Pulchra | 3 ft. |
| Euonymus Japonicus Aureus | 6 ft. |
| Gardenia | 3 ft. |
| Hypericum Patulum Henryi | 4 ft. |
| Lantana | 4 ft. |
| Lonicera Nitida | 4 ft. |
| Rosmarinus (Rosemary) | 4 ft |
| Veronica Gracilis | 4 ft. |

### MEDIUM TO TALL HEDGES.

| | |
|---|---|
| Cerasus Lauro Cerasus (English Laurel) | 15 ft. |
| Coprosma Lucida | 6 ft. |
| Cotoneaster | 5-10 ft. |
| Crataegus Crenulata | 8 ft. |
| „ Angustifolia | 8 ft. |
| „ Yunnanense | 8 ft. |
| Duranta Plumieri | 8 ft. |
| Escallonia Macrantha | 6 ft. |
| Ficus Hilli | 30 ft. |
| Hibiscus Evergreen Varieties | 5-10 ft. |
| Ligustrum New Golden | 6 ft. |
| „ Pubescens (Small-Leaved Privet) | 6 ft. |
| „ Lucidum (Large-Leaved Privet) | 10 ft. |
| Myoporium (Boobyalla) | 10 ft. |
| Nerium (Oleander) | 6-10 ft. |
| Olea Europea (Common Olive) | 8-15 ft. |
| Photinia Glabra Rubens | 10 ft. |
| Plumbago Capensis | 6 ft. |
| Purple Guava | 10 ft. |
| Tamarix Ahpylla (Athel Tree) | 30 ft. |
| Tecoma Capensis | 12 ft. |
| Viburnum Tinus | 6 ft. |

### CONIFERS, CYPRESS, PINES, ETC.

| | |
|---|---|
| Cupressus Lambertiana Horizontalis | 50 ft. |
| „ Lambertiana Horizontalis Aurea | 40 ft. |
| „ Arizonica | 20 ft. |
| „ Torulosa | 25 ft. |
| „ Lawsoniana | 20 ft. |
| „ Macrocarpa | 60 ft. |

## SOME EASILY GROWN CLIMBING PLANTS.

The number of climbing plants known to the botanical world is very considerable, but of these only a few can be regarded as suitable for home garden cultivation. Even the list of varieties usually available commercially (i.e., those grown by nurserymen) can be further reduced to those which, because of their special qualities, have earned the appreciation of those garden enthusiasts who seek a few climbers that are not over-particular in their requirements. Such are the varieties in this list.

For the meaning of the symbols used, see table on page 187.

| VARIETY | Evergreen or Deciduous | Suitable for | Flowering Season | REMARKS |
|---|---|---|---|---|
| AKEBIA Quinata | D | A | Spring | Fragrant purplish flowers in racemes; very hardy. |
| BIGNONIA Lindleyana | E | TC-C | Spring | Delightful Lilac flowers. |
| BIGNONIA Tweediana | E | A | Spring | Rich yellow; hardy and self clinging to walls. |
| BIGNONIA Venusta | E | TC-C-In | Winter | Orange tubular flowers; requires frost-sheltered position. |
| BOUGAINVILLEA Magnifica Trailli | E | TC-C | Summer | The best purple; prune Aug.-Sept. |
| BOUGAINVILLEA Mrs. Butt | E | TC-C | Summer | Ruby red; prune July. |
| BOUGAINVILLEA Rosea | E | TC-C | Winter<br>Spring | Strawberry pink; prune Nov.-Dec. |
| GELSEMIUM Sempervirens (Carolina Jasmine) | E | A | Winter | Bright yellow, jasmine-like flowers; splendid for shade. |
| JASMINIUM Primulinum | E | A | Spring | Semi-double yellow flowers; recommended. |
| LONICERA Aurea Reticulata | E | A | Foliage only | Beautiful variegated foliage and very hardy. |
| MANDEVILLEA Suaveolens | D | TC-C | Spring | White fragrant blooms. |
| RHYNCHOSPERMUM Jasminoides | E | A | Spring | White, heavily perfumed flowers; very hardy and particularly recommended. |
| SOLANUM Jasminoides | E | TC-C | Summer | White flowers. |
| THUNBERGIA Gibsoni | E | TC-C-In | Spring | Old gold flowers suitable for frost-sheltered positions. |
| THUNBERGIA Grandiflora | E | TC-C | Spring | Large blue flowers. |
| WISTARIA Multijuga | D | A | Spring | A beautiful purple; also available in rosy lilac, white, and lavender blue. |

## HINTS ON CLIMBING PLANTS.

It is unfortunate that many climbing plants which would be otherwise very decorative are allowed to grow unchecked. Some varieties have very vigorous growth but this can be kept in trim by regular pruning after each flowering. If this pruning is neglected, the time will come when they have to be cut right back, thus leaving them bare and unsightly for some weeks. Some of the less vigorous plants, particularly soft wooded varieties, require only light top clipping from time to time. Not only does it keep them in trim but encourages lower growth and makes the plant much more decorative.

**Choosing Your Requirements:** It is possible that as a beginner you will have difficulty in selecting the best climbers or shrubs for your garden. We maintain a special correspondence service and will be glad to advise of suitable varieties for any particular locality. It is helpful, however, if we know something of the conditions under which the plants will be grown and details, such as type of soil, frosts (heavy or light), rainfall, exposed to wind or sheltered, are always welcome. The type of climate can be indicated by the bare description of the plants which grow in the locality, such as "Cold enough for Cherries," "Oranges thrive," "Tender annuals such as Petunias flower all through the Winter unharmed by frost," etc.

> *"God Almighty first planted a garden, and indeed, it is the purest of human pleasures and the greatest refreshment to the Spirit of Man."*
>
> —LORD BACON.

## PERENNIAL AND HERBACEOUS FLOWERING PLANTS.

**Some, at least, of the following should find a place, if at all possible. These varieties will add, both to the range of types and colourings, and help to provide a continuity of garden loveliness.**

**DELPHINIUM PACIFIC GIANTS.** Two-year-old crowns are available. These stately plants produce long, bold flower spikes ranging in colour from the palest sky blue to the darkest shades of violet. Before planting the crowns it is advisable to add plenty of well decomposed manure mixed well with the soil.

**ASTER** (Michaelmas Daisy). Perennial Asters are one of the most important groups of plants in the herbaceous border. They do well in any garden soil and should be divided every year into small clumps for best results. There are about 8-10 distinct shades.

**MESEMBRYANTHEMUMS.** These have shiny, satin-like flowers that are wonderfully showy, especially in the sunlight. These plants thrive in any soil and are suited to rockeries and dry banks where other plants may fail. We have about 10 distinct colours.

**BOUVARDIA.** A most charming perennial, flowering all through the Summer almost to the middle of Winter. The young plants should be protected from the frosts. For best results plant during the Summer months.

**PENTSTEMONS.** Free-flowering perennial plants that bear large trusses of bell-shaped flowers with long tubes. The colours cover a large range of beautiful shades, including red, scarlet, pink, white, purple and blue.

**PERENNIAL PHLOX.** No class of plant produces a finer display of blooms than well grown Phlox. The colours range from pure white to dark crimson, salmon, blues and purples in many shades. They like plenty of old manure in the soil and do best when established for two or three years.

**FUCHSIAS.** They do best in partial shade; should be sheltered from frost and strong wind. It is advisable to cut well back during August-September.

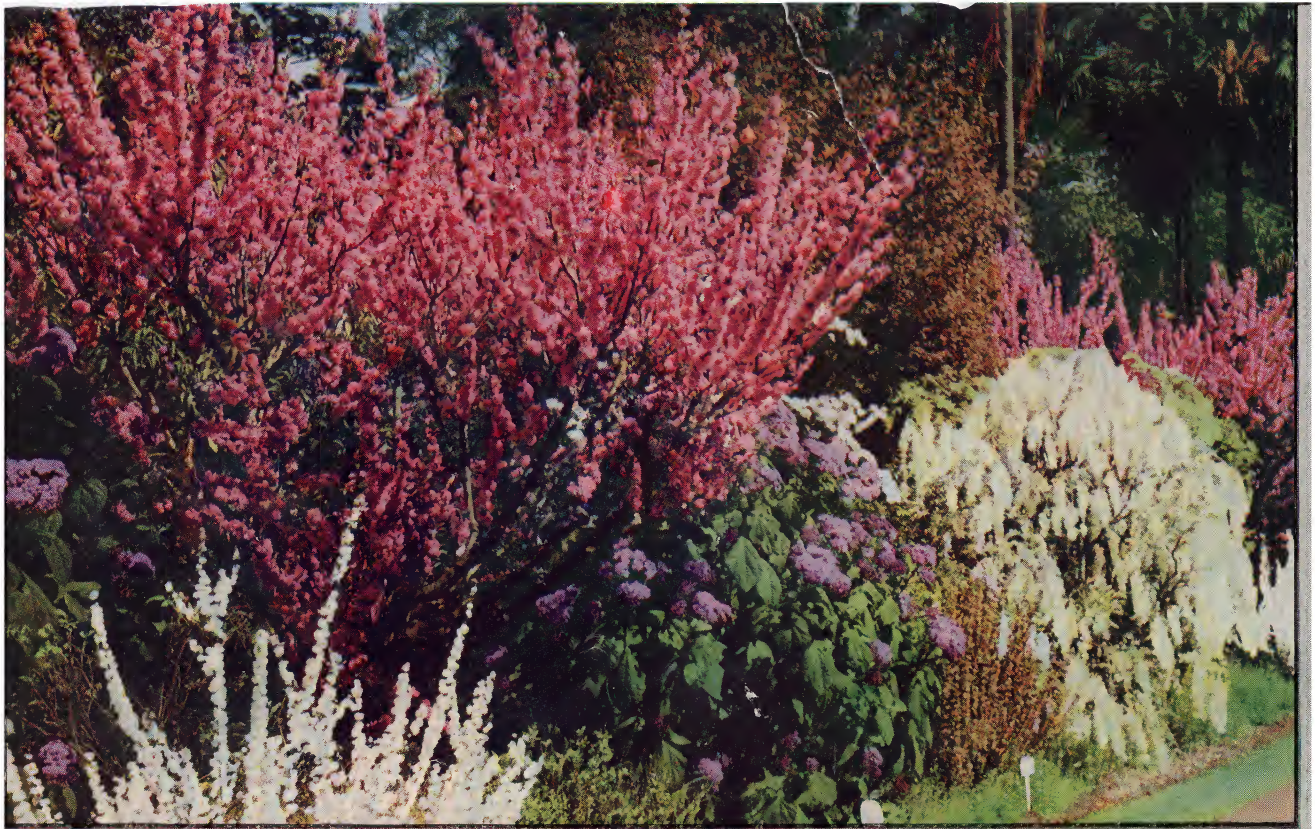
**POLYANTHUS.** We have available two-year-old crowns in many rich and varied colours.

**GERBERAS.** Doubles and singles are available in about 15-18 distinct shades, but in the seedlings these plants are all mixed colours.

**SHASTA DAISY.** They are excellent for cut flowers and ornamental purposes. Varieties we suggest:—

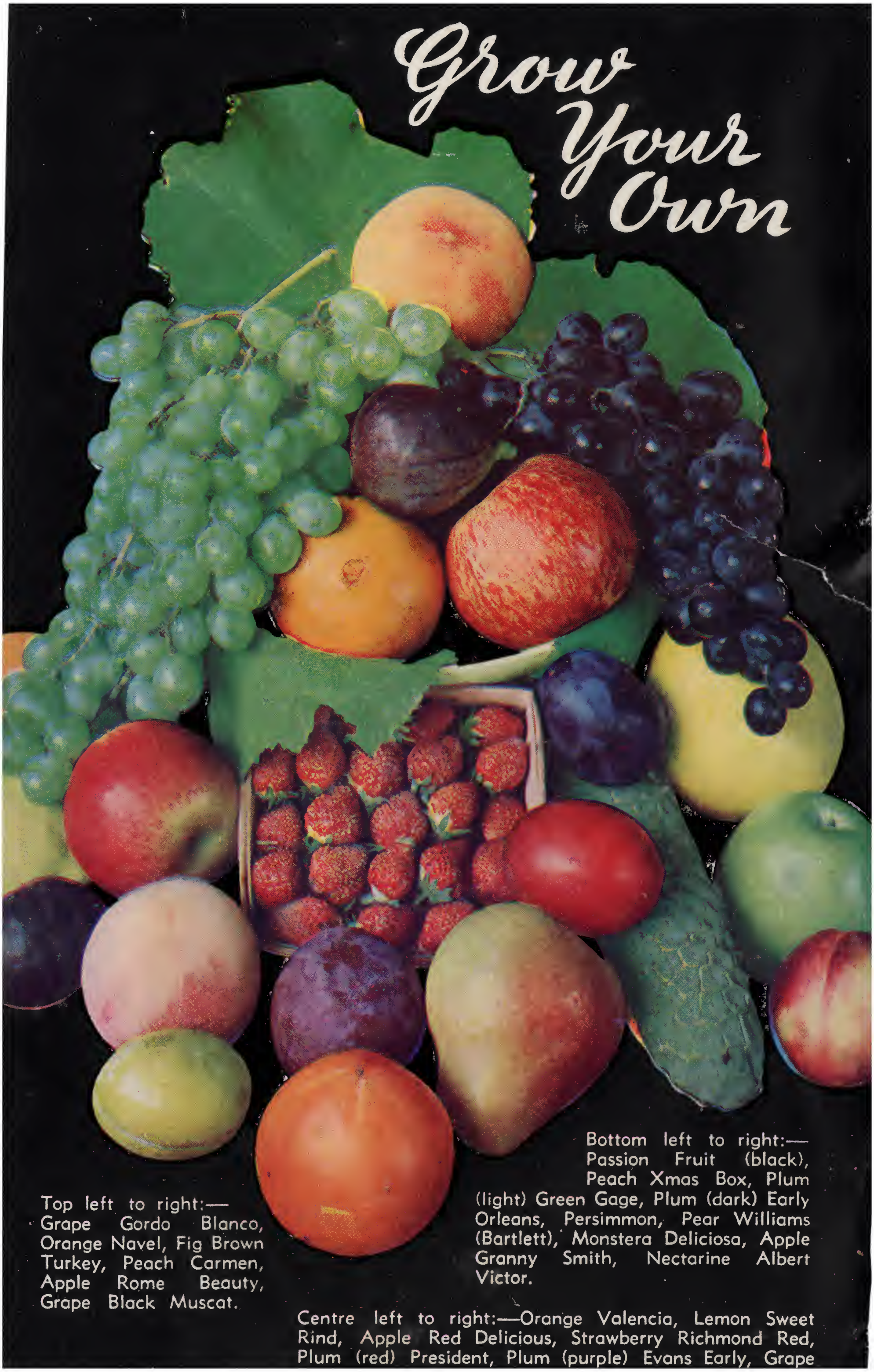
Snow Storm—Long stems; large, single flowers 3-4 inches across.

Esther Reed—A double variety with large crested centre surrounded with single petals. Excellent for cut flowers.



The "highlights" of this colourful scene are as follows:—

From left to right—The top branches of a Double White Flowering Plum (Prunus Sinensis Alba Fl. Plena); Double Pink Flowering Peach (Amygdalus Sinensis); Eupatorium Megalophyllum (mauve flowers); and White Wistaria (Wistaria Sinensis Alba) trained as a shrub.



# Grow Your Own

Top left to right:—
Grape Gordo Blanco, Orange Navel, Fig Brown Turkey, Peach Carmen, Apple Rome Beauty, Grape Black Muscat.

Bottom left to right:—
Passion Fruit (black), Peach Xmas Box, Plum (light) Green Gage, Plum (dark) Early Orleans, Persimmon, Pear Williams (Bartlett), Monstera Deliciosa, Apple Granny Smith, Nectarine Albert Victor.

Centre left to right:—Orange Valencia, Lemon Sweet Rind, Apple Red Delicious, Strawberry Richmond Red, Plum (red) President, Plum (purple) Evans Early, Grape

## CHAPTER 13.

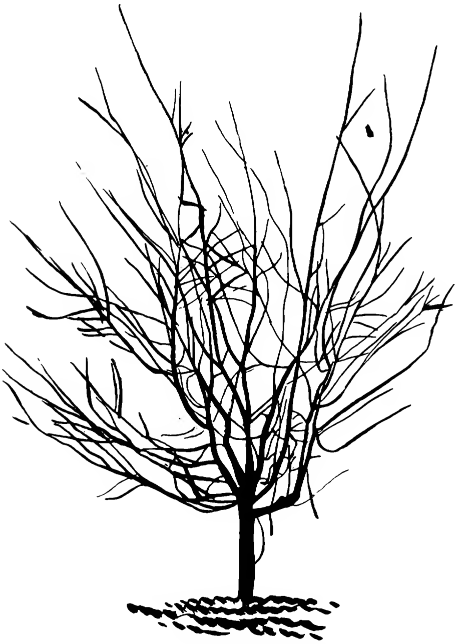
# FRUIT TREES & FRUITING PLANTS.

**Fruit Trees should, as a rule, be grown in a piece of land set apart for the purpose, and the land between them should not be cropped (except, of course, with green manure crops which are ploughed in) after the trees have been planted two or three years. Any crops planted before this should be well manured so as not to impoverish the land, and should be grown well away from the trees.**

**After this, the places for the trees should be marked out with pegs, say, 18 to 24 feet apart, according to the variety, but if the orchard is at all a large one regular distance should be adopted in each plot and trees carefully planted in lines, either on the square or the alternate system.**

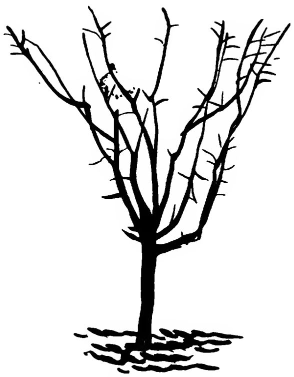
### PLANTING.

The months of June and July are the best for planting deciduous trees; citrus trees are better put in during the Autumn or Spring. The holes should be carefully dug and a stout stake driven well in for each tree. See that the soil at the bottom is fine before planting. Take care that the trees are planted rather deeper than they were grown in the nursery, especially where the soil is light and drainage good, and see that the roots are carefully spread out, any damaged ones being cut off with a sharp knife. It is always best to lay the longest and strongest roots in the direction from which the strongest winds come, so as to give



*At Left: A 3-year-old English Plum before pruning.*

*Below: The same tree pruned. Note the well-balanced shape and the elimination of the low left-hand branch which in this case would have interfered with the orchard cultivation.*



All fruit tree and plant illustrations in this chapter are adapted from photographs published in the book "Pruning," authorised by the N.S.W. Department of Agriculture, and acknowledgments are made accordingly.

the young trees all the support possible. Afterwards tread the ground firmly round each tree.

After the trees have been planted four weeks, and the roots have commenced to grow, the trees should be cut well back, each branch to within a foot or so of the main stem, taking care to cut just above a bud which is pointing upwards and outwards. This latter is most important, as, according to the direction of the young shoots, so will the tree be either made or marred right from the beginning.

## PRUNING.

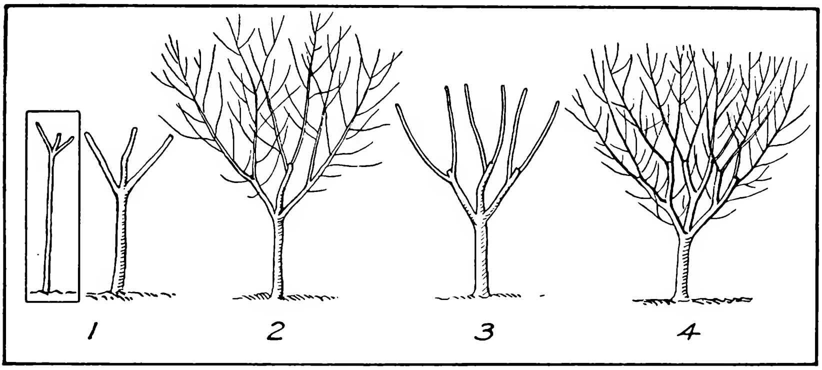
The object of pruning Fruit Trees is for the proper regulation of the branches, so as to encourage the production of blossom, and the maturing of heavy crops of good fruit. Many trees will crop heavily enough without much attention, but the quality is often very poor. If the pruning be too severe the tree will grow to wood instead of fruit. On the other hand, if the branches are left too thick they overshadow those beneath them, excluding the light and air and encouraging a great growth of leaves, but very little fruit.

It is always an advantage to have a good knowledge of the fruit-bearing wood of the different kinds of Fruit Trees, and to be able to form an early judgment as to the future productiveness of the various shoots and branches. This can only be obtained by practice and observation, but the information given here will, no doubt, be useful, and will help our readers to prune their own trees and eventually gain the experience which only comes from practice.

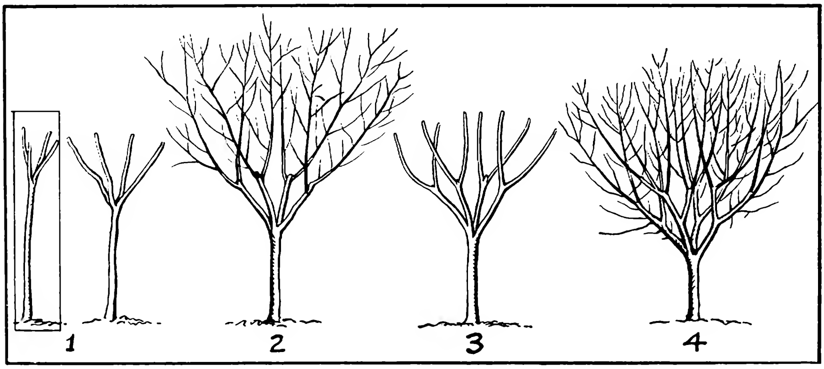
Winter is the usual and best time for pruning, but sometimes a judicious thinning out of the young shoots may often be performed with advantage in the Autumn; but it must be done so late in the season that there will not be a further growth of fresh shoots. This reduction of the growth while the sap is still flowing encourages the growth of the main branches which are to form the tree, but in no case should these main branches be cut back till the Winter pruning, say, in June or July. Any shoots that are pruned in the Autumn should be cut above the fourth bud, so that they can be again cut back to the second bud when the Winter pruning is performed.

## FORMING THE TREE.

When a stock is budded or grafted it will throw a long, straight stem the first year. On this the future head is to be formed. In the following Winter this should be cut down to a height of about two feet above the ground (unless, of course, the young tree has already formed a proper head), being very careful to cut just above a good strong bud. The tree will then throw out a number of



*This and the illustration on opposite page show the correct development of young trees. In square: tree as received from nursery. Fig. 1. Pruned after one year's growth. Fig. 2. Second year's growth. Fig. 3. Pruned for the second time. Fig. 4. Result—a shapely tree.*



*Figs. 1, 2, 3 and 4 show trees in same stages as those on opposite page but with slightly different growth.*

shoots just below the cut. Of these only the three strongest and best regulated, usually the highest ones, should be retained, cutting all the others off close to the stem during the Summer, so as to give the full benefit of the sap to the three strong ones remaining, which will in time be the main branches of the tree. At this stage the trees are most suitable for planting out during the months of June and July. After they have been planted a few weeks, as mentioned before, these side shoots should be cut back to within a foot or more, according to the strength of the branch, and just above a strong bud pointing outwards. This simple way of pruning, carried out for four years after planting, will give a well-shaped tree of semi-upright form, with short stem. Tall trees are much to be condemned; they catch the wind and do not sufficiently shade the stem and roots. They are difficult to prune or spray, and also to pick or regulate the fruit.

The various kinds of Apples, Pears, Plums, etc., vary somewhat in their habit of growth. Climate and soils also affect their vigour. To obtain the best results from the trees, the pruning should be varied slightly to suit these conditions. We can only give the general principles in this Guide. Should readers desire more detailed information we would advise them to send to Arthur Yates & Co. Pty. Ltd. for the New South Wales Government publication "Pruning." We are indebted to this book for some of the information given in this chapter.

## APPLES, PEARS, PLUMS, CHERRIES.

All these form fruit on the old wood, short fruit spurs form along the branches and so long as these are uninjured, and the branches and tree remain healthy, they will continue to bear when the seasons are favourable. When these trees come into bearing they do not require a great deal of pruning; cutting back heavily each Winter only causes the trees to make excessive growth instead of fruiting. Instead of this we recommend that the subsequent pruning shall consist in keeping the trees symmetrical, in regulating the density of the branching system, and removing any diseased, weakened or broken branches. Cherries particularly resent heavy cutting back, and this is frequently the cause of the trees "gumming."

None of these trees are self-pollinating. For example, you may select as your choice a Granny Smith Apple, but to grow this on its own without any other varieties in the vicinity would mean that there would be either no fruit at all or very little. Consequently, it is necessary to choose another variety, i.e., one that blooms almost exactly the same time. The same applies to all the different varieties of Pears, Plums and Cherries. With each variety mentioned in

Yates' Fruit Tree List a suitable pollinator is included and there is no difficulty in making your choice.

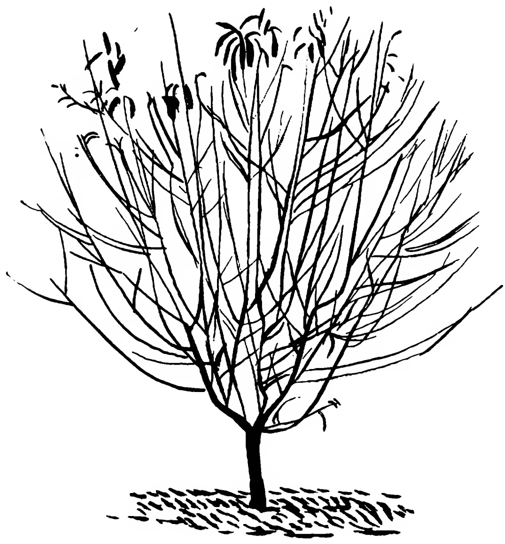
## PEACHES AND NECTARINES.

These will often bear as very young trees, but the best method is to devote the first two years to forming and developing the tree, after which the main object should be to maintain the form and develop regular bearing. The first year's pruning should consist of cutting back, leaving three or four main branches. The following Summer the growths can be thinned and pinched back to prevent the centre becoming too thick, and to keep the heads of the trees low. The main principle in pruning the matured trees is to renew the fruit-bearing wood. The fruiting shoots grow one season and bear the following one, and the branches that are not making new fruit-bearing growths should be cut back. When a new shoot breaks out at the base of the older one, remove the older one. Overcropping must be carefully avoided by thinning while the fruit is swelling. This may also be achieved by not leaving more fruit-bearing wood when pruning than the tree can bear. Old trees may be renovated and brought into fresh, vigorous growth and bearing by cutting well back and so encouraging new growth.

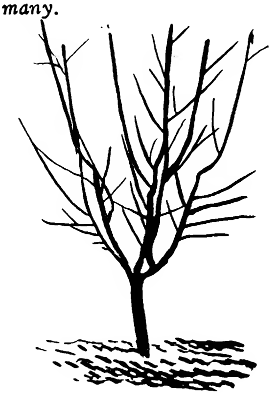
Nectarines and Peaches are self-pollinating with one exception: J. H. Hale Peach does require a suitable pollinator, such as the Blackburn variety.

## APRICOTS.

These, like the Peach, bear their fruit on one-year-old wood, and also on spurs two years or more old. They are usually very vigorous growers for the first four or five years, and to make them into a good shape should be trimmed during the Summer as well as the ordinary Winter pruning. The object is to have strong, sturdy branches, strong enough to carry heavy crops of fruit, instead of weak branches, which they are very apt to make. They should have a well-balanced, symmetrical, low head, with branches free from forks, and each with a separate hold of the trunk or main arms. Most varieties of Apricots will, with proper pruning, throw out small fruit spurs from the branches,



*At Left: A well grown 3-year-old Peach tree before pruning.*
*Below: The same tree pruned. Because this tree was doing so well a large number of twigs were left but in poorer ground this may prove too many.*



where it is very desirable to have them, and, where the bulk of the fruit should be borne. Usually, after eight years, the trees require very little pruning, as they should be producing crops every year and making comparatively little growth. Those varieties which bear a heavy crop every second year should be pruned rather heavily the Winter before the heavy crop is expected, and only lightly the next year. In this heavy pruning the fruit spurs and shoots will require thinning out and shortening back. This will reduce the crop, but will give much finer fruit and the tree will bear more regularly. Any trees not yielding to this treatment should be dug out and another variety planted.

Apricots are self-pollinating.

## CITRUS TREES.

See page 201.

## FIGS.

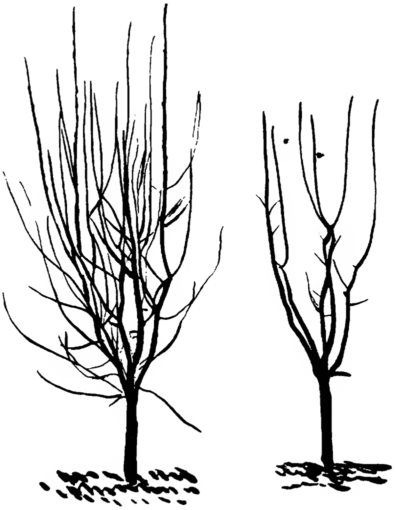
Thrive best in a warm, dry climate and prefer well-drained loamy soil, where roots can reach water. Require little pruning beyond shaping and thinning-out where branches are too thick and dense. This delicious fruit will grow in almost any Australian climate, bearing first to third year. Main crop in Autumn.

## GRAPE VINES.

These may either be grown as standards fixed to a stake or on a trellis or wire. The latter will give a larger yield, but the fruit may not be so fine as when fewer bunches are produced per vine as in the Standard type. Young vines at planting should be cut back to 9 or 12 inches above the ground. If the size of the plant will not allow this, cut well back, and, when it shoots, train one shoot up a stake, rubbing the others off while they are green. The following Winter cut this back to an eye 9 to 12 inches above the ground; the following Winter cut back to three spurs, radiating round the top of the vine. The crown of the vine should always be kept compact, and the bearing shoots should spring from the top in each direction. Each Winter the vine should be pruned back to this crown. At the third or fourth year, half-a-dozen spurs, with two buds each, may be left, and later on, if the vine grows strongly, more may be left on, say, 8 or 10 spurs at the most. When grown on a wire or trellis, cut away all growths the first year except one, which should be cut back to one eye. The following Winter cut away all laterals and again shorten back this long growth to good, sound, fully matured wood, and train along a wire. This may be repeated year by year, but the laterals on the year-old wood may be cut back, forming spurs each with three or four buds. Only strong spurs well spaced should be allowed to remain. The heaviest crops are taken from vines pruned to give plenty of light and room for each spur. Vines like a well-drained soil, and, if only a few are being planted in the garden, we would recommend that a few old bones should be kept in the ground around each plant.

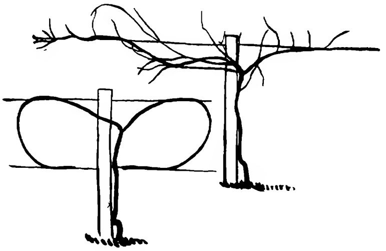
## NUTS.

Whilst Nuts are not as widely grown as perhaps they could be in Australia there are some varieties of which cultivation is fairly widely practised and fortunately plants are usually available commercially. It is, however, advisable to order your requirements early in the season



*At Left: A 3-year-old William Pear.*

*At Right: The same tree pruned.*



*Top: A young Grape Vine before pruning.*

*Lower Left: The same vine pruned. The practice of taking the twigs into the centre stem, although often done, is not a good one and, in fact, these twigs should go outwards on the lower wire.*

(about March) so as to avoid disappointment later on.

A brief mention of some popular varieties is given below:—

### ALMONDS.

These trees thrive in our inland climates where there are fairly cold, but not too cold, Winters. They are early flowering, commencing about the end of Winter or early Spring and quite frequently trees fail to bear because of severe late frosts. They like a moderately rich soil and fairly deep cultivation.

Pruning mainly consists of shaping the young trees with a view to making a low head and spreading habit. In older trees all dead wood should be immediately removed. Two or more varieties should be grown for pollination. See notes on this subject under Apples on page 195.

### FILBERTS.

**(Also known as Hazel Nuts or Barcelona).**

Commence bearing 5th to 6th year after planting.

Small deciduous nut-bearing tree, usually growing 10 to 15 feet high. Suitable only for cool climates. Trees grow well in warm climates, but rarely bear. Nuts: Brownish kernels, plump good quality, fine flavour.

### MACADAMIA.

**(or Queensland Nut).**

An evergreen native tree, growing from 20 to 30 feet high and bearing good crops of round, hard-shelled nuts. Thrives best in coastal belts with fairly high humidity. Very fine flavour, white kernel, rich in oil.

### WALNUTS.

Although the Walnut revels in a deep, rich soil, it is probably the most cosmopolitan of all trees, and will succeed in a greater variety of soils and climates than almost any other fruit tree. Any well-drained soil that will grow fruit trees is suitable, but when maturing a crop of nuts the trees need abundant moisture.

This is particularly true with a large variety like Wilson's Wonder, and if the trees are allowed to suffer from drought many of the kernels will fail to fill out as plump and full as desired.

Walnuts have a long tap root and to grow these successfully it is necessary to prepare a hole 2 feet 6 inches to 3 feet deep. Walnut trees make their new Spring growth much later than all the other deciduous fruit trees. When they start to come into growth they send their long tap roots down into the ground and during the months of November and December it is necessary to give them good soakings of water once or twice a week; by doing this it ensures that the vigorous tap root will not be prevented from going deep into the soil and that it will also obtain the necessary moisture at a deep level.

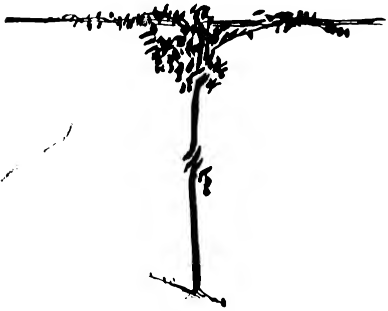
## PERSIMMONS.

These are best trained with a low head, and the branches should be thinned to make a well-balanced, shapely tree. Each year the new wood may be shortened back with advantage, and any dead or weak branches should be cut away. One of the most important matters is to regularly thin the fruit when the trees are overbearing. When the fruit is 1 inch in diameter is the best time to do this. Much finer fruit will be the result and more regular crops.

## PASSION VINES.

These will grow in almost any soil in climates not subject to heavy frosts, and also require shelter from strong winds. They are vigorous growers, and give the heaviest returns in rich, well-drained, friable loam, with occasional dressings of bone-dust or other manure, if possible 1 inch in, potash. They are usually planted 12 feet apart, and are trained along two No. 8 wires supported on posts standing 5 feet above the ground, and 20 to 30 feet apart. The young plant is trained with a single stem up a light stake till it reaches the wire, when it is allowed to make three or four leaders, which are trained either way along the wire.

As the plant grows older it sends out a number of laterals. These may be allowed to remain for the first two years or so, but afterwards they should be pruned each November by cutting back all growth to within a foot of the wire on the underneath side. If the vines are old and very thick along the wire, half the remaining portions may be thinned out with advantage. Pruning at this season reduces the Summer crop, but materially increases the Winter crop, when the fruit is usually of more value.



*A 6-months'-old Passionfruit Vine trained along a wire—the method used by most commercial growers.*

## BERRY FRUITS.

### (Youngberries, Loganberries, etc.)

### YOUNGBERRY.

We believe that there is a very bright future for this berry being much superior to the Loganberry and perhaps even the Boysenberry. The large dark fruit is ideal for jams, jellies and syrups. It is sweeter than the Loganberry, ripening about early December, bears heavy crops and is a particularly vigorous grower.

### BOYSENBERRY.

Similar to the Youngberry, although the fruit is not quite as black and the vines not quite so vigorous. In most districts it ripens about mid-November.

### LOGANBERRY.

Not so large as either of the above two varieties, although plants are very prolific and fruit makes excellent jam.

All the above varieties have a trailing habit and some support in the form of a trellis or wire netting is necessary. They grow in all but the very hottest and very coldest districts and need ample water during dry weather. Soil should be prepared by adding a generous quantity of rotted manure and digging this in to a depth of about 9 inches. Where several plants are grown a spacing of 6 feet apart is recommended.

Pruning consists of leaving as many canes on the plant as it is thought it can carry, according to its age and vigour. When the plant is received all weak-looking shoots should be removed, leaving the strongest one, which is cut back so that only 4 to 6 inches remain. During the following Spring and Summer the plant will put on considerable growth and the canes that form will carry fruit the following season. However, the first Winter after planting it is advisable to remove all but two canes, which are shortened back to about 6 inches.

At the third Winter (including the one when you planted) plants should be pruned to leave about four canes and these can be extended on to the wire, leaving them, say, about 3 feet in length. These canes should then carry a good crop of fruit the following season. Once having fruited the cane is no longer of any use. Pruning thereafter comprises each year of eliminating all canes which have cropped and select new strong canes for the following season. Those home gardeners or commercial growers in New South Wales who would like to obtain more detailed information on the culture of these plants are advised to write to the Department of Agriculture, Farrer Place, Sydney, for their leaflet on this subject. We are indebted to the Department for much of the information in these notes.

### RASPBERRIES.

Raspberries are usually planted singly, 4 feet apart, and trained to a stake, and the berries fruit from the previous year's canes. The Winter pruning consists in cutting out the old canes which have fruited, and also any new canes too weak to bear, leaving each plant with sufficient growth according to its strength.

## PESTS AND DISEASES OF FRUIT TREES.

See Chapter 14 for the control of fruit fly, codlin moth and aphis. Home gardeners and orchardists encountering any disease or pest problems are advised to write to their nearest Department of Agriculture. Where possible send suitably packed specimens so that they arrive at their destination early in the week and not at the week-end.

## STRAWBERRIES.

### SOIL.

For the cultivation of Strawberries a north-easternly slope of sweet, well-drained, sandy loam, rich in humus, is to be preferred. The soil should be worked to a depth of 15 to 18 inches. the deeper the better. Lime improves the condition and is usually dug in a few weeks before other manures.

### MANURING.

The best Fertiliser is old decayed farm-yard or fowl manure, liberally applied and dug in to a depth of 10 to 12 inches. This also may be applied in the Autumn and early Spring as a mulch, when the plants have set their first blossoms. The best artificial fertiliser is a mixture of about 60 lbs. of Sulphate of Ammonia to 120 lbs. of Superphosphate per ¼ acre, spread evenly and forked in before planting.

### PLANTING.

Strawberries may be planted from April to September inclusive, but the earlier they are put out the better. There are several methods of planting. Some home gardeners prefer single rows spaced 20 inches apart, with the plants 8 inches apart in the rows. This method is also used by some commercial growers.

Most general method, however, is to make beds 3 feet wide with a space of about 15 inches between each. The soil in this space is dug out to a depth of about 4 inches and spread out over the beds. This will increase their soil depth. These spaces then make paths, convenient for cultivating and digging.

Three rows are planted to a bed. with 16 inches between each and 10 inches from either edge. Always plant the centre row first. Space plants 12-14 inches apart in the rows.

In some areas where growth of plants is very vigorous indeed and mechanical or horse-drawn implements are used in the early stages, commercial growers find a planting of 2 feet apart for single varieties is best, but this method will not usually recommend itself to the home gardener with limited garden space.

When planting, only well-rooted sections of the runners should be used, and the roots should be cut back to about 2 inches from the stem. Spread the roots horizontally with the soil firmly pressed around them, covering up as far as the base of the lowest leaf.

### AFTER TREATMENT

Keep soil moist, and keep down weeds; but cultivate always at a shallow depth to avoid injuring the surface-spreading roots. Mulch with straw or tan bark if possible at flowering time to keep the berries clean. The runners should be cut off, but if young plants are required, sufficient may be allowed to grow about January. When these are rooted, remove at once to a nursery bed.

The crop commences to bear during the early Spring, and if well looked after should bear for several months. Pick with some stalk attached to the fruit. During the Winter keep the ground free from rubbish. A well-kept Strawberry bed should last for two or three years, after which it generally pays to establish another bed elsewhere. If a rotation crop of a different nature is grown, it will improve the soil and help to prevent the spread of disease.

### PESTS AND DISEASES.

The Strawberry Beetle which attacks the fruit and crowns of the plant is the chief pest. The pupae pass the Winter in the soil. Regular cultivation during this period will expose them to the birds, and the Spring application of artificial fertilisers will destroy many. Mildew and Black Spot form the chief diseases, and thorough drainage, liming the soil, and spraying with Bordeaux Mixture are the best preventatives. If some Nicotine Sulphate is added, it will destroy any Red spider present.

## CITRUS FRUITS.

The most widely grown citrus fruits are, of course, oranges, lemons, mandarins and grapefruit, but this term also covers limes and cumquats. These trees will grow in a wide variety of soils and climates but, of course, yield better in some districts than others. Fairly mild winters with perhaps light, but not heavy, frosts, and warm Summers with fair rainfall are ideal conditions for citrus.

### SOIL.

Practically any good garden loam will successfully grow citrus, or can be made suitable. It is usually an advantage to prepare the ground a few weeks before planting and dig it to the full depth of the spade or down to the top of the subsoil. Sometimes in very shallow soils, the topsoil is removed and then replaced after breaking up the subsoil. In most cases it is advisable to dig in well-rotted cow or stable manure (about six months old and without lumps—not poultry manure), mixing it thoroughly with the soil, say about one part manure to two parts of soil. It is not advisable to make the holes too deep, especially in heavy clay (water-holding) subsoils where the water is unable to quickly escape after rain. Such holes become small pools in wet weather and the trees will usually sicken and die.

Lime will generally help to release plant foods in the soil and put it into better condition. Up to 1 lb. per square yard of agricultural lime can be used.

### SITUATION.

Many citrus fruits fail to bear well even though given ideal soil conditions and this is usually due to exposure to strong winds from the west and south. They prefer a situation open to the east and north but well sheltered on the south and west sides. The most common symptoms of trees in exposed positions are loss of foliage and heavy dropping of fruit.

### TIME TO PLANT.

It should always be remembered that citrus do not take kindly to cold weather and are always more easily established during a warm, moist period. In most districts this is during March and, possibly, early April. Spring plantings, say in August, September and October are also suitable and, of course, will depend on the exact locality and weather conditions. It is not advisable to plant citrus in cold districts during May, June or July.

### PLANTING.

Like all evergreens, citrus need more careful treatment than the deciduous trees. Advanced citrus trees growing in kerosene tins are, of course, the simplest to transplant because it is then only a matter of carefully cutting the tin and moving the whole of the soil and roots to the new position. However, the majority of plants are from the open ground and these should be planted as quickly as possible with the minimum amount of exposure of their roots to the air. If several trees are to be planted a wet bag should be rolled around them and a bucket of water also carried. The roots are then dipped into the water just prior to placing the tree into position.

In the actual planting, the roots should be distributed as evenly as possible and at sufficient depth to ensure that the graft comes just level with the surface of the soil. With the tree set in position, the soil should then be returned to the hole, avoiding the large lumps. As the hole is filled, the higher roots should be lifted upwards with the finger and embedded into the soil at a higher level. When the hole is three parts filled press the soil firmly or tramp lightly with the feet and water thoroughly. The remainder of the soil can then be returned to the hole, but only sufficient so as to leave a slight basin-like depression around the trunk of the tree.

Most citrus at lifting generally lose their leaves and it is best to first cut these off, particularly in dry weather. It is not usual to prune trees at planting, but if the weather is dry and high winds prevail they can be cut back.

Unless there is rain it is necessary to water regularly (sometimes daily) until the trees are well established.

Given this treatment there should be no losses, but quite frequently trees are believed to be dead because leaves have fallen and the stems may appear slightly withered. However, as long as the stem is green the tree will live.

## GENERAL CARE.

The annual fertilising with artificial manures is also advised, especially if animal manures are difficult to obtain. Ready mixed fertilisers which are, in fact, balanced plant foods, such as No. 12, provide the necessary requirements for the health of the trees. Small trees may be given a good double handful of fertiliser and this is increased in quantity as they grow. Large, fully-grown trees will require up to 7 lb. each year.

## PRUNING.

Only old or neglected trees require heavy pruning but sometimes light pruning of long leading shoots is advisable on younger trees to keep their shape. Pruning immediately stimulates new shoots which are likely to be damaged by frost. Theretore, no pruning should be commenced before September or when all danger of frost is over. All dead or dying wood should always be removed and if left, provides a host of fungus diseases. Centres of the trees should always be kept well opened up to permit better coverage of stray materials for scale or disease control and any growth appearing within a foot of the ground should be rubbed off.

## ADVANCED CITRUS.

These are usually in their third year and are already well established in kerosene tins. Although a little more costly, more than two years' growing time is saved because, after planting, the trees do not receive a setback and there is no "recovery period."

## PESTS AND DISEASES.

**Pests:** For Red Scale, Olive Scale, White Wax and resultant Black Smut on citrus trees, white oils such as Alboleum and Albarol may be used with absolute safety at any season of the year. See Scale Pests, page 208.

Aphides sometimes infest the trees during Winter but usually appear in the Spring. They are easily recognised by their soft bodies about the size of a large pin's head and are either black or green in colour. Sprayings with D.D.T. emulsions, such as "Rulene" or "Mustex," or Nicotine Sulphate, will be successful.

**Diseases:** Generally the spraying with white oils as advised above will keep the trees free of most of the common diseases, such as Black Spot, Brown Rot, etc. However, if these do appear it will be necessary to use Bordeaux mixture at the rate of approx. 1 part to 40 parts water. White oil can be added as an adhesive at the rate of ½ pint to 10 gallons of water. For Black Spot, spray when the blossoms have fallen and then follow up with three more sprayings at intervals of five weeks. For Brown Rot, spray in early April and also spray the soil around the trees.

**Collar Rot:** Identified by the rotting of the bark at or just under ground level. Cut away the diseased parts carefully and paint with Bordeaux Paint or Stockholm Tar.

**Leaf Yellowing:** Use Dolomite Lime—a double handful to a square yard. Sulphate Ammonia—1 oz. dissolved in 2 gallons of water—or liquid manure watered in will also help to restore trees. Badly affected trees may need two or three applications but quite often one will suffice.

**Fruit Drop:** There are a number of causes and you are advised to write to the Department of Agriculture, Farrer Place, Sydney, for their leaflet No. 3276 (Miscellaneous Publication). This leaflet deals fully with **Fruit Drop.**

## CHAPTER 14.

# PESTS, DISEASES AND REMEDIES.

**Is gardening becoming more difficult because of the increasing number of pests and diseases attacking plants?**

**What are the reasons for the apparent increases of these troubles?**

**These are frequently-heard questions but without actual statistics, which are not available, it is not possible to give a satisfactory answer.**

**The amount of trouble that a gardener encounters both from pests and diseases depends greatly on a number of factors—methods of cultivation, weed control and the condition of nearby gardens. It is worthwhile discussing two of these points separately because they do have tremendous influence on pests and disease control.**

**Methods of Cultivation:** Healthy plants, grown at the right time of the year, are less likely to be troubled by disease. Over-manuring of certain plants will cause rank and weak growth which is most susceptible, but on the other hand poorly-fed plants will also easily succumb. Feeding and watering are the first steps in avoiding garden troubles. Most gardeners know, too, that early Tomatoes are nearly always badly affected by bronze wilt, whereas those sown later are fairly immune. Beans that are sown too early not only germinate poorly but those plants that do grow are frequently weak and unproductive. This applies also to very late sowings and quite a lot depends on soil temperature as well as the hours of sunlight that certain plants need for successful growth.

**Weed Control:** Apart from harbouring slugs, snails, cut-worms and other pests, weed patches are also a haven for thrip which not only destroy plants but also transmit diseases such as spotted wilt on Tomatoes. Weeds, therefore, not only rob the plants of valuable food elements when growing in garden beds, but also have their effect even when some distance away.

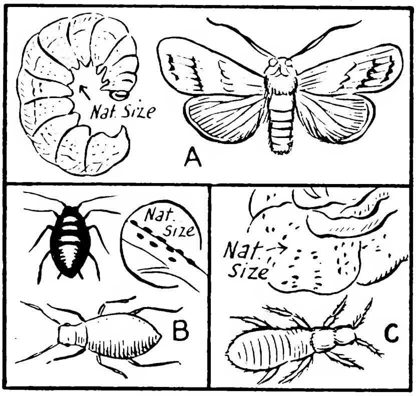
## INSECT PESTS.

There are two main divisions:—

1. **Chewing Insects**—those which chew the surface of leaves and stems and for which a stomach poison is usually necessary to ensure control;

2. **Sap-sucking Insects**—those that suck the sap from the leaves and stems and for which an insecticide that kills by contact is essential.

Prior to the discovery of D.D.T. it was necessary to use an entirely different insecticide for these two categories of pests, but with D.D.T. it is now possible to control both sap-sucking and leaf-eating pests (not all of them by any means) with the one application. See section on D.D.T.—page 209.



*A. Cut Worm and Moth. B. Black and Green Aphis. C. Thrips.*

### Chewing Insect Pests.

The most important of the chewing insects are caterpillars, grubs, codling moth, pumpkin and other beetles, grasshoppers, crickets, slugs, snails and slaters. They live by feeding on leaves, flowers and fruit, portions of which are chewed and passed through the digestive organs. By spreading a coating of poison over the whole of the plant, the insect, which feeds on the foliage, has no alternative but to absorb some of this material which destroys it. The "poison" may not necessarily be toxic to human beings; for instance, Derris Dust or Derris Spray is quite harmless to us but a poison to many leaf-eating pests. On the other hand, Arsenate of Lead, which was frequently used before the advent of D.D.T., is a deadly poison.

The effective period of a spray application depends on weather conditions and therefore regular sprayings, say every two weeks, are necessary. This also ensures that new, untreated growth receives its protective covering.

**Caterpillars:** There are many different species of this pest, but all have the same effect, the destruction of plants and fruits. Derris Dust or Derris Sprays, such as "Katakilla," are effective as non-poisonous insecticides, but D.D.T. is now almost universally used. Obtain a reliable brand of D.D.T. and mix according to the directions on the packet purchased.

**Codling Moth:** This pest is responsible for the destruction of enormous quantities of fruit each season, particularly Apples, Pears and Quinces. Briefly, its history is that the moths emerge in early October, lay eggs from which are hatched the young grubs. These enter the fruit and feed inside it, eating their way to the centre. At the end of 28 days, the grub pupates and in another 15 days emerges as a moth; the same cycle is then repeated and, quite frequently between October and March, three broods are produced from the original Spring moth. It can be seen then that control methods are necessary throughout the season. The first spraying is necessary just as the petals fall and the calyx is prominent. To spray earlier than this is ineffective. Sprayings should then be continued every three weeks until all fruit is harvested because, contrary to what might generally be supposed, these grubs attack not only young and unformed fruit, but also fully grown specimens.

Home gardeners in N.S.W. are advised to write to the Department of Agriculture, Farrer Place, Sydney, for a leaflet on the life history and control measures of this pest. Gardeners in other States can obtain information from their respective Departments of Agriculture in each capital city. In N.S.W. there are compulsory control measures which owners of trees must carry out; these are also indicated in the leaflet.

Arsenate of Lead, which was at one time the main spraying material for this pest, is not now widely used and D.D.T. has taken its place. This should be used as advised by the maker of the brand purchased.

**Fruit Fly:** Like the Codling Moth, fruit fly also attacks the fruit laying its eggs by "stinging" the skin. Soon the young grubs or maggots emerge from the eggs and burrow into the fruit. Unlike Codling Moth, however, attacks do not usually commence until the fruit is half grown and continue in intensity until it is ripe.

The following formula was evolved by the officers of the N.S.W. Department of Agriculture and has been found particularly effective for home garden use:—

1 fluid oz. Nicotine Sulphate,
2 fluid ozs. 20% D.D.T. Emulsion,
2 lbs. Sugar,
4 gallons Water.

Nicotine Sulphate (Black Leaf 40) is extremely poisonous and should be used with care. The D.D.T. is not added until immediately before application. The most convenient method for the small home garden is to dissolve 4 level tablespoonsful of white sugar in ½ gallon water and add 2 small teaspoonsful of Nicotine Sulphate. This can be kept as a stock mixture but when ready to apply add 2 teaspoonfuls of 20% D.D.T. Emulsion. Use the mixture immediately and apply by dipping a brush into the solution and flicking it on to the trees—a household scrubbing brush will serve the purpose. About ½ pint of this liquid is sufficient for each tree. Spraying the solution is not recommended as the brush application has been found not only more effective but also more economical and simpler.

Treatment should commence from about five weeks before the fruit is expected to ripen and continued at intervals of 3-4 days until all the fruit is harvested. Should there be rain immediately following an application, treatment is repeated as soon as the rain has stopped.

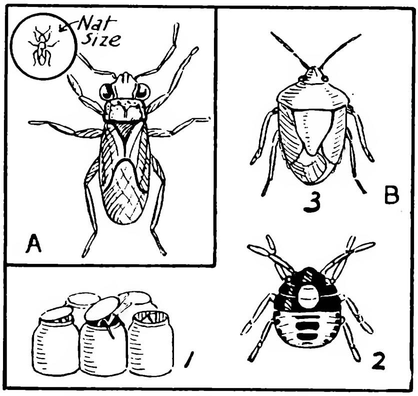
No treatment yet evolved has been found 100% effective, but under tests the above control measures resulted in 87% of the fruit being free of fly. The number of fruits affected is numerous and includes all the Summer and stone fruit, as well as Tomatoes, Guavas, Persimmons, Passion-fruit and Loquats. Some Citrus are also susceptible but particularly the Grapefruit and Seville Orange. Gardeners or orchardists wishing to learn more about this pest and also the regulations that must be adhered to, should write to their respective Departments of Agriculture in their nearest capital city.

**The Pumpkin (or Vegetable) Beetle:** These pests have caused considerable damage in recent years. In appearance the Pumpkin Beetle is very similar to the lady bird. They are, however, distinguished by their black spots which, on the lady bird are round, whereas those on the beetle are oval. Moreover, the body of the lady bird is rounder and the spots smaller than those of the pumpkin beetle. The lady bird is, of course, a friendly insect and destroys many aphides. Unfortunately, although D.D.T. controls them, it can only be used in a weakened solution because of injury to the foliage. This applies also to Cucumbers and all vine vegetables.

A recommendation by the N.S.W. Department of Agriculture is that plants be dusted with hydrated lime and tobacco dust in equal parts for the first two or three weeks after the plants come through the ground and thereafter they can be dusted with one part Derris Dust to four parts of "Kaolin" (or flour) as a "filler." Another method is to dust with Calcium Arsenate, 1 part by weight mixed with 15 parts by weight of hydrated lime. Dusting should be carried out in the early morning when the foliage is still moist.

**Cut-worms:** This pest is really a large grey caterpillar living in the soil by day and coming out to feed on plants at night. They are about 1 inch in length and have a leathery looking skin. They attack young seedlings just above ground level, often completely severing the stalk, and they might also strip the leaves off older and more established plants.

The presence of cut-worm can often be detected by leaf portions protruding above the surface of the soil in the early morning. By carefully moving the soil away the pest can then be located about 2 inches under the surface. Fortunately D.D.T. will destroy many of these pests and sprayings should be carried out as directed on the package of the brand purchased. Sometimes it is necessary to use a poison bait made up of 1 ounce Paris Green, ½ lb. bran and 1 ounce treacle. Sufficient water is added to make a crumbly mash and the bait is rolled up into small pellets which are placed close up to the plants.



*A. Rutherglen Bug. B. Green Shield Beetle showing—1. Eggs with young bugs just hatching. 2. A half-grown bug. 3. An adult specimen.*

**WARNING:** These baits are very poisonous and should not be used where children, birds and pets can have access to them.

Quite frequently watering the ground with weak mustard water or a solution of Sulphate of Ammonia (1 tablespoonful to a gallon of water) will have the effect of forcing the cut-worms to the surface and they can be destroyed.

**Snails and Slugs:** These are too well-known to need description and most gardeners are very conscious of the tremendous damage they cause. Nowadays their control has been simplified by the use of effective baits, such as Defender. Small heaps of these baits, about a teaspoonful to each heap, are distributed around or among the plants, particularly young seedlings, many of which will be destroyed unless given this protection. Where there is a large area or a great number of plants to protect, frequent baiting can prove expensive and take a considerable amount of time. Many hundreds of snails can be disposed of by inspecting the plants after dark with a torch and the pest destroyed on the spot. It will be found, too, that these pests shelter under bags, boxes or vessels that may be left around the garden. The best method is never to have these lying around, but if some are left as "traps" they should be inspected daily and not left unattended so that the snails can emerge each night. Neglected patches of weeds are also harbours for these pests.

**Crickets, Beetles and Grasshoppers:** Usually it is necessary to use a bait for these pests, and the following, which is poisonous and must be handled carefully, is recommended:—

1 ounce Arsenate of Lead or Paris Green mixed with 1 pound Bran and enough Treacle to make a stiff paste. This should be rolled into lumps about the size of a walnut and placed in various parts of the garden. These baits, dangerous to children and pets, should be covered with boards or wire netting if there is any possibility of them being picked up.

**Woodlice or Slaters:** Young seedlings, tender shoots and surface roots of plants are all targets for these pests, which do their damage at night. They are slate coloured, have a shelly back and many legs; average specimens are about ½ inch long. A simple home remedy is to trap them by cutting potatoes or turnips in halves and slightly hollowing out the centres. The cut surface is laid face downwards on the ground with sufficient room for the slaters to crawl underneath. These traps should be inspected every morning and dozens of pests can be destroyed on the spot. Paris Green baits for Cut-worms are also effective in this case. Bags, timber, pieces of wood lying around the garden, are all harbours for these pests and should be removed.

**Tomato Moth**—see page 213.

## Remedies for the Control of Chewing Insect Pests.

### D.D.T.

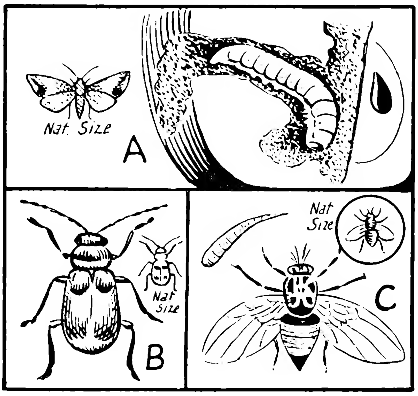
While this is mainly for the control of sap-sucking insects, it is also now widely used in combating such chewing pests as Caterpillars, Codling Moth and Fruit Fly. It has now generally superseded Arsenate of Lead for these and similar pests for which there was formerly no other efficient insecticide. Further notes on the use of D.D.T. are found on page 209.

### DERRIS DUST.

A non-poisonous insecticide and can be used with varying results against practically all chewing insects as well as some sap-sucking insects. It is also available for spraying under trade names such as "Katakilla." As a dust it can be easily applied by shaking a coarse bag full of the dust over the plants or by tapping it with a stick. Derris Dust is also frequently used on vine crops, such as Pumpkins, Cucumbers, etc., for which D.D.T. is injurious.

### ARSENATE OF LEAD.

Being extremely poisonous to human beings, Arsenate of Lead is not readily used by home gardeners, and D.D.T. has now generally taken its place. It can, however, be used on vine crops for which D.D.T. is unsuitable for the control of grubs. The usual proportions for a spray are 1 ounce Arsenate of Lead powder to every 2 gallons of water.



*A. Codling Moth and Grub in apple. B. Pumpkin Beetle. C. Fruit Fly and Grub. See page 204.*

## Sap-Sucking Insects.

Practically all sap-sucking insects drain the sap from the young shoots and leaves by means of a beak which they insert into the foliage or stem. The withdrawal of this sap from the plant either causes loss of vitality or complete wilting. As these insects cannot be poisoned through digestive organs, they must be combated with an insecticide that kills by contact. Either spraying or dusting is effective but must be done thoroughly so as to ensure as near to a 100% kill as possible.

**Aphides:** These soft-bodied insects probably cause more damage in gardens than most other pests. They are likely to attack almost any plant, but particularly Roses, Cabbages, Cauliflowers, some shrubs, such as Hibiscus, Tomatoes and many other vegetables. In size, they are about equal to a Tomato seed or a little smaller. The most common forms are the black and green, but there is also a slaty-grey aphis which does considerable damage. Their rapidity of increase is amazing and the proportion over a few weeks could easily be one million. If there are no insecticides on hand when the pest is first noticed, plants can be hosed with a strong jet of water or sprayed with soapy water (½ lb. good soap to a gallon of water). The green and black aphides are fairly easily destroyed with D.D.T., but for the slaty-grey type, H.E.T.P. is necessary. Both these materials should be used at the strength recommended by the maker of the brand purchased.

H.E.T.P. will kill all aphides but is a highly poisonous material when applied. In a very short time it breaks down into a harmless compound and can therefore be used on crops nearly ready to harvest.

Nicotine Sulphate (Black-Leaf 40) is also effective against Aphides. See page 209.

**Woolly Aphides:** These are detected by a white downy appearance on the twigs and branches of fruit trees. They particularly favour Apples and Pears. Spray with D.D.T. as recommended for green and black aphides. For prevention, also spray with red oil for Winter and White oil for Summer.

**Thrip:** This pest has proved one of the worst enemies of the flower grower and particularly damaging to Gladioli. It carries diseases to plants from affected areas and is mainly responsible for the high proportion of spotted or bronze wilt on Tomatoes. The insect is best described as "lice-like" and is only just visible to the naked eye, although on one flowering plant there may be many thousands of them. Their presence on flowering plants is noted by the damage they do to the darker coloured flowers, such as red. Petals are often laced with white markings, completely spoiling their appearance. Nevertheless, they seem to have a particular preference for white and light coloured flowers, which they destroy.

They make their first appearance during the early Summer, and hot, dry conditions are favourable to their increase. Without an insecticide, constant hosing will help to keep down their numbers.

Fortunately D.D.T. now readily controls this pest and sprayings should be continued about every seven days until they disappear. Use at the rate advised on the directions of the brand purchased.

**Rutherglen Bug:** As indicated by the illustration, the Rutherglen Bug is a small, fly-like insect. It attacks mainly Cabbage, Cauliflower, Pumpkins and Tomatoes, but is also seen on other plants, such as Potatoes. Spray with D.D.T., except for Pumpkins, for which it is unsuitable. For these plants it is necessary to use Derris Dust or Pyrethrum Powder. Failing a suitable insecticide being on hand, a simple method is to trap them by the following method: A shallow dish containing a little water with kerosene floating on the surface is drawn along the ground between the plants. During this process the bushes are beaten with an old broom or piece of brush and many of the insects which are weak fliers, are caught in the dish.

**Green Vegetable (or Shield) Bug:** This will be easily recognised by most gardeners because of its rich green colour and distinctive green shield shape of its back. The young bugs first emerging from the eggs are black but as they develop the colour changes through red, green, black and yellow before they finally attain the well-known bright green colour.

They attack Beans, Tomatoes, Potatoes, Melons and many flowering plants, causing considerable damage and eventually killing plants if the infestation is high.

Fortunately, D.D.T. controls them satisfactorily. **Spraying or dusting** should be carried out as advised on the directions of the package purchased.

It sometimes occurs that they attack plants with crops ready to harvest and as it is undesirable to spray such vegetables with D.D.T., it is advisable to use a non-poisonous insecticide such as Pyrethrum Powder or Derris Dust. As a temporary measure, it is possible to drive off numbers of these pests with generous dustings of slaked lime.

Prevention being better than cure, it is better to search for the eggs of these pests and these are found in clusters on the foliage. They are easily recognised by their peculiar shape, as illustrated on page 206.

**Scale Pests:** Scale Pests are usually sap-sucking insects which live on the stems and foliage of many trees and plants. They are detected by the waxy scale that forms over them as they develop. There are many different kinds of scale, such as white wax, brown scale, Indian wax scale, and all need similar treatment.

During Winter deciduous trees can be sprayed with red oil. This spraying is particularly recommended for fruit trees, as it also helps to protect them from many other pests, and generally improves their health.

In the early stages, scale pests can often be eradicated by a simple solution of 1½ lbs. common washing soda dissolved in 4 gallons of water. This is sprayed on, or, where only one or two small trees have to be treated, it can be brushed on.

The general treatment, however, is spraying with white oils, such as Albarol or Alboleum, and this can be done at almost any time of the year. In most districts, however, best results are obtained by spraying in the early months, preferably January or February, using white oil at the strength of 1 part to 50 parts water by measurement (½ lb. to 3⅛ gallons). This treatment will usually clean the trees of red scale, olive scale, white wax, and the resultant black smut that is seen on citrus.

When the ordinary white scale or pink wax scale is present, trees should be sprayed during January or February and to the above solution it is necessary to add 1 lb. washing soda. Dissolve the washing soda first in about ½ gallon of hot water.

Lime sulphur used at the rate recommended is also a useful scale preventative but should never be used in combination with white oil. See further notes on white oils, page 210.

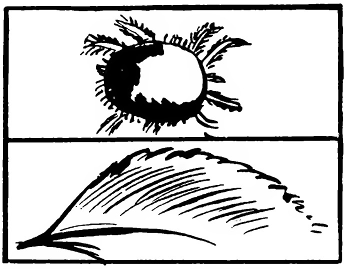
**Mealy Bug:** This pest will not often trouble the home gardener but is especially fond of ferns and other pot plants grown in bush houses and similar places. It can be detected by the white cottony substance that covers it. It is usually found on the backs of leaves and sometimes attacks the roots of plants.

Where only a few plants need treatment, the easiest way is to touch the insect with the point of a camel hair brush which has been dipped in methylated spirits. However, D.D.T. will effectively control this pest.

Where these insects attack the roots of pot plants, the whole pot should be stood in a very weak solution of Nicotine Sulphate (1 ounce to 10 gallons of water) for half an hour. This same solution can also be used for sponging leaves.

**Bean Fly:** The attacks of this pest are mainly confined to the coastal districts although they have been noted in some inland areas.

As a protection, plants should be sprayed with D.D.T. when they are about three days old. Continue applications at intervals of about seven days. The N.S.W. Department of Agriculture advises Summer and early Autumn sown plants to be sprayed 6-8 times; mid-Autumn sown plants 4-6 times and late Autumn 2-4 times.



*Red Spider: For description and treatment, see below.*

**Red Spider:** Although, fortunately, attacks of this pest are not frequent, it causes considerable damage when it does infest plants. It derives its name from the tiny mites which suck the sap from the stems and foliage.

The most effective treatment is spraying with E605 (Folidol) or with sulphur sprays, such as "Wetsul." In the vegetable garden it mainly attacks Beans; any plants affected should be burned as soon as possible.

## Remedies for the Control of Sap-Sucking Insects.

### D.D.T.

The introduction of D.D.T. has made possible the control of many sap-sucking insects which previously defied all other insecticides. It is also effective against many leaf-eating pests, particularly caterpillars. In the garden it can be used against thrip, bean fly, cabbage moth, green and black aphides, potato moth, corn-ear worm, tomato caterpillar, fruit fly, cut worms, green vegetable bug, rutherglen bug and codling moth.

It does not, however, control the slaty-grey aphides, for which the H.E.T.P. is necessary.

It can be combined with most other insecticides including any sprays containing sulphur, such as lime sulphur or sulphur materials.

D.D.T. can either be sprayed or dusted on plants. There are advocates of both methods but most gardeners will find spraying more convenient. Dusting is advisable on some plants which are subject to mildew during humid weather and where spraying might increase this trouble. It is also advisable for more effective control against such pests as cut worms. Dusting should always be done during the early mornings while there is still dew on the plants.

It is usually available in three main forms—powder, paste or emulsion—and each form has its particular merits. However, the home gardener will prefer fine emulsions the most convenient for mixing. All preparations should be used at the strength advised by the maker of the brand purchased.

**Warning on the use of D.D.T.:** D.D.T. is injurious to vine crops such as Pumpkins, Cucumbers, Marrows, Melons and Squashes, but a weak solution of half strength can be used. Spray late in the day to avoid burning.

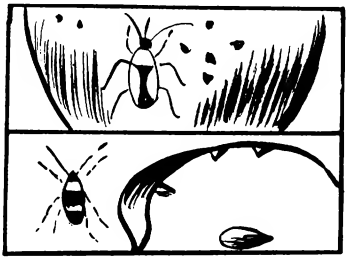
D.D.T. can never be used on vegetables that are ready for picking, and spraying must be discontinued six weeks before vegetables are expected to be ready for use. It is a cumulative poison and continual absorption into the body could have serious results. All vegetables should always be well washed if D.D.T. has been used at any time during their growth.

### H.E.T.P.

This insecticide has some rather unusual features in that it is a severe poison and remains so for a few hours after spraying. After this it begins to break down and loses its value but not before it has had its effect on insects. It is particularly valuable for combating aphides and is often more effective than D.D.T. It can be used against the slaty-grey aphis which defies D.D.T. It should be used with great care but once sprayed on to the plants there is no further danger after the first few hours.

### NICOTINE SULPHATE.
### (Black-Leaf 40).

Many gardeners and commercial growers still prefer this spray for the control of aphides to either of the above preparations and it appears to still have considerable advantages over D.D.T. for these pests. When used as a spray the proportion should be 1 ounce of Nicotine Sulphate to



*Harlequin Fruit Bug: A pest that is not only destructive to fruit, particularly Apples, but also to garden plants, such as Dahlias and Tomatoes. The lower picture shows the young bug and, at the top, the fully grown specimen. They have red bodies with black markings. These pests make holes in the rind of an apple, causing the fruit to spot. Spray with Nicotine Sulphate at the strength recommended by the maker of brand purchased.*

4 gallons of water. Its killing power can be greatly increased by the addition of soap or soap powder at the rate of ¼ lb. to 10 gallons of spray. It is useful for the control of Mealy Bug, Red Spider, some types of scale and, of course, aphides. It is quite harmless to plant life but extremely poisonous to human beings and should be kept away out of the reach of children or pets.

*Red Mites: These are not much larger than a pin's head and are usually found on the underside of garden foliage. They are sometimes referred to as Red Spider but are actually larger than these latter pests. Spraying with White Oils or Nicotine Sulphate in Summer will help to control them. For Winter Sprays use Lime Sulphur or Red Oil 1 in 20. This is usually done when the buds commence to swell.*

### LIME SULPHUR.

Most gardeners are familiar with this valuable fungicide, particularly for the control of powdery mildew, rust and similar fungus diseases. As well as being a fungicide, it will also control many sap-sucking insects.

Like all sulphur preparations, it should not be used on vine crops, such as Pumpkins, Cucumbers, etc., owing to the danger of injury to the foliage. For these plants, therefore, Bordeaux Mixture is usually used.

Proprietary mixtures under various trade names are probably the best method of using lime sulphur and directions given on each package or tin should be followed.

### WHITE SPRAYING OILS.

These have great value in the garden and, apart from their use for the eradication of scale pests, are also valuable for mixing with other sprays, such as D.D.T. and Nicotine Sulphate, to secure better adhesion. Plants sprayed with white oil are covered with a fine film which resists attacks by many pests, and ensures that the killing effect of sprays mixed with it remains on the plants for a much longer period.

White oils are available under various trade names and should be used as directed on the container purchased.

### RED SPRAYING OILS.

These are almost entirely used in orchards against scale pests. Frequently lime sulphur is preferred, with water. Used as the preparations suggested below they are also effective for exterminating woolly aphis, red spider and scale pests.

#### Deciduous Trees.

Winter spraying, when the trees are dormant: 1 gallon of Oil to 20 gallons of water.

Spring spraying, when the buds commence to swell: 1 gallon of Oil to 40 gallons of water.

#### Citrus Trees.

Winter spraying: 1 gallon of Oil to 30 gallons of water.

Summer spraying: 1 gallon of Oil to 45-50 gallons of water applied during the cool part of the day.

#### Other Plants.

Roses, Hedges and Soft-wooded Plants: 1 part of Oil to 50 parts of water.

## DISEASES OF PLANTS.

As already indicated in the opening paragraph of this chapter, many plant diseases can be prevented or their effect lessened by good cultivation and by having a clean garden. Briefly, there are three general divisions of plant diseases, as follows:

1. **PHYSIOLOGICAL,**
2. **FUNGUS,**
3. **VIRUS.**

**Physiological** diseases are those brought about by malnutrition, soil deficiencies, and bad drainage, but providing the home gardener employs proven methods of cultivation and plant treatment, he should not be greatly worried by this type of disease. There is no cure other than to find out the cause and endeavour to rectify it —if not for the affected crop, then for subsequent crops.

**Fungus** diseases are ones which will mainly trouble the home gardener and they are introduced through the water-conducting tissues of the stems, preventing their normal functioning; wilting and rotting results. Other forms appear as leaf infections caused by humid condition, too much soil moisture and perhaps plant injury. Most of these can be controlled by dusting or spraying treatments, which are discussed later.

**Virus** diseases: Probably the greatest evidence of Virus diseases is seen in Tomatoes which are affected by bronze or spotted wilt, causing severe loss amongst plants, particularly during the early part of the season. Unfortunately, no cures have yet been found for this type of disease and therefore measures to prevent it as much as possible are necessary. Here are some useful points to remember:

1. Plants susceptible to Virus diseases should not be sown too early or too late in the season.
2. Practise crop rotation, thus avoiding growing Potatoes or Tomatoes in the same ground two consecutive seasons.
3. Protect plants against Thrip, which carries the disease, by regular sprayings of D.D.T.
4. Avoid the temptation to leave suspected plants in the ground in the hope that they will recover. Pull them up and burn them as quickly as possible.

The presence of Virus disease is either indicated by the mottling of the foliage which shows light and dark green patches or by the dwarfing and wrinkling of the leaves. One of the most common is the leaf roll of Potatoes. Plants become stunted and leaves are thick and leathery, finally finishing stiff and upright.

Some flowering plants are also affected by Virus diseases, and Sweet Peas sometimes show an irregular and mottled yellowing of the foliage which commences on the lower leaves.

The foregoing gives a general idea of the appearance of plants affected by Virus diseases but it should also be remembered that plants affected by fungus diseases might show similar symptoms. Home gardeners desiring to identify suspected Virus trouble should send specimens to their own Department of Agriculture.

## FUNGUS DISEASES.

Most of the materials used for the control of fungus diseases contain sulphur in one form or another and if, during humid weather, plants likely to be affected were regularly treated with sulphur there would undoubtedly be less troubles from these diseases.

All types of plants are likely to be affected but those which are particularly susceptible are vine crops (pumpkins, cucumbers, etc.), roses, carnations, tomatoes, grape vines, and Summer-growing lettuce.

It will be noticed that most of these crops are those that make their growth in the warm Summer months when such diseases are more prevalent.

Even if preventative measures have not been taken it is possible to control fungus diseases, providing they are combated early and it is necessary therefore to recognise them and to note the remedies.

**Mildew:** Plants affected include vine crops (pumpkins, cucumbers, etc.), tomatoes, grape vines, roses, carnations and onions. Most plants contracting this disease show bluey mould on the foliage and if not checked this results in the withering and wilting of the plant and finally it may cause its total loss, and it is almost certain in any case that the crop will be negligible.

There are two main kinds of mildew, namely powdery mildew and downy mildew.

Powdery mildew will be noted by the white powdery patches occurring on leaves, but downy mildew is distinguished by a white, furry covering.

Some of the plants named are affected by both types of mildew, whilst others, such as Onions, are only usually susceptible to one such as downy mildew.

Probably the cheapest and most economical method for a clean garden is to use sulphur and hydrated lime in equal parts. This must be dusted on to the plants and as in some cases, such as vine crops, the disease attacks the underside of the leaves, these must be treated . For this purpose a dust gun is necessary.

Weak solutions of Bordeaux mixture can also be used and is particularly effective. This preparation should be used at the rate recommended by the maker of the brand purchased. It should be emphasised that different strengths are used for Summer and Winter and also for different plants. For instance, Bordeaux mixture used at the same strength for fruit trees would be most injurious to tender vegetables.

Combined dusts, such as Nosco "All-in-One" dust, are most convenient for the home gardener. Not only do they contain sulphur for the control of fungus diseases, but also other ingredients in the correct proportion for the control of insect pests.

**Black Spot:** Plants affected are mainly roses and fruit trees, but other plants are sometimes affected. For control, see Diseases of Roses, page 165.

**Irish or Late Blight:** Plants affected are mainly Potatoes and Tomatoes. The symptoms are usually in the form of black or brown smudges on the edges of the leaves which sometimes appear to be water soaked. As the fungus develops, the foliage blackens and wilts. It is generally most prevalent during periods of moist weather and particularly during the Autumn months. Spraying with Bordeaux mixture is recommended and if this disease is prevalent in any particular district, sprayings should commence from the time plants are 6-9 inches high. Such sprayings of Bordeaux mixture will also help to check other fungus diseases.

**Early Blight:** Plants mainly affected are Potatoes, Tomatoes, as well as Egg Plant. Dark brown circular spots appear on the foliage and although not as damaging as late blight, can considerably affect plants. Control measures are the same as for late blight.

**Fusarium Wilt:** Plants affected include Potatoes, Tomatoes and Egg Plant. In Tomatoes, there are some varieties, such as Marvana, which have been bred to resist this particular wilt. The affected plants show a bronze discolouration of the tissues which is visible through the green "skin" of the stems. This discolouration can be further exposed by cutting through the stem or root.

Clean or sterilised seed beds are advised, as the plants are ofte affected at that particular stage—se Formalin on page 214 for hints o soil sterilisation. Crop rotation is advised and Tomatoes or Potatoes should not be grown in the same ground for two consecutive seasons. A much longer intervening period than this, is, however, desirable.

**Black Spot in Tomatoes (Blossom end Rot):** This is quite different from the black spot mentioned earlier and affects only Tomato fruit where, at the blossom end, a large black area appears and there is a complete collapse of the tissues. Fruits affected are soon completely destroyed.

There is no known cure for this trouble but appears to be definitely caused by irregularity in the moisture requirements of the plants. Sudden drying out of the soil caused by hot, dry winds or flooding of the soil are the apparent causes. Quite frequently plants recover and later fruit is unaffected.

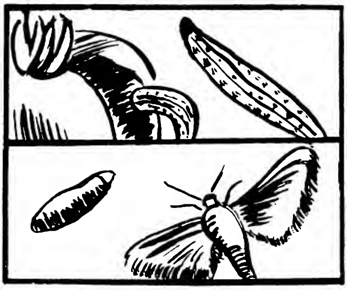
**Root and Crown Rot:** This mostly attacks ornamental plants, such as Sweet Peas, Calendulas, Iceland Poppies and even some shrubs. It is a fungus disease and commences somewhere about the junction of the stem and the surface root growth. Ordinary fungicidal sprays are apparently valueless for combating this disease. The plants appear stunted and even well-grown plants will wilt and yellow off. If Black Rot areas on the roots and crown are noticeable, every home gardener and commercial grower would do well to attend to the sterilising of the seed bed for the next batch of plants. Even if he makes a practice of introducing new soil every year, it is quite possible some of the original soil would remain and the disease would still be present.

The use of Formalin has proved very satisfactory in the control of Root and Crown Rot. It also appears to destroy a number of organisms in the soil which affect the germination of plants. The method of using Formalin is fully described under "Remedies for Fungus Diseases" on page 213. The treatment of already affected plants is to use Corrosive **Sublimate described on page 214.**

**Damping Off:** This is a fungus disease which is very prevalent during warm, humid weather. The seedlings either "damp off" as soon as they come above the surface or they first grow readily, and apparently healthy plants shrink in the stem and quickly wilt and die.

Sterilise the soil with Formalin. See page 214.

**Wire Stem:** This is somewhat similar to damping off, but affects mostly brassica crops, such as Cabbages, Cauliflowers, Brussels Sprouts and also Stocks in the flower garden. It is caused by a fungus, and soil sterilisation of the seed beds will do much to prevent it. It usually appears when seedlings are 1 to 2 inches high and the stem just above the ground becomes water-soaked, causing the plant to fall over and wither. Generally, however, the seedlings recover partially, but the stem is malformed, causing a crooked or stunted plant with an extra thin neck at the soil surface. This is another instance of the use of Corrosive Sublimate, which for brassica crops is used at the rate of 1 ounce to 10 gallons of water, and usually a little weaker than this for Cauliflowers—1 ounce to 15 gallons. For Stocks or other flowers of the brassica family, 1 ounce to 20 gallons of water is necessary. See page 214 for the handling of this chemical. It is highly poisonous.



*Tomato Moth: In the top illustration is shown the Caterpillar, which is a creamy colour with brown spots. The lower illustration is the Chrysalis and the Moth. The Moths will be recognised by their silver-grey appearance on both the body and wings. For control, spray with D.D.T. at the strength recommended by the maker of the brand purchased.*

## Remedies for the Control of Fungus Diseases.

### BORDEAUX MIXTURE.

This is a valuable fungicide for the control of a wide range of fungus diseases, including Irish Blight, Scab, Powdery Mildew, and similar troubles. Tomato plants which are regularly sprayed from the time they are transplanted should resist most fungus troubles. In the orchard it is used as an anti-fungus spray during the late Spring months.

It can be obtained in ready-mixed form under various trade names and should be used according to the directions given.

For those who prefer to make their own Bordeaux Mixture, the following formula is advised by the N.S.W. Department of Agriculture: Dissolve 2 pounds of Blue Stone, preferably finely granulated or powder, in 36 gallons of water, using a wooden cask or copper vessel. In a separate vessel place 2 pounds of lime, adding 4 gallons of water and mixing up to a cream. While vigorously agitating the blue stone solution, pour in the cream of lime. The mixture is now ready and altogether there will be 40 gallons of spray, all of which should be used immediately, otherwise it deteriorates.

The above formula would be known as the 2-2-40 mixture, indicating, of course, that there are 2 pounds blue stone, 2 pounds lime, and 40 gallons of water. This would be a good strength mixture to use on, say, Tomatoes, but sometimes control measures call for a weaker or a stronger spray and, for instance, it may be a 4-4-40 mixture that is required. In this case there would be 4 pounds blue stone and 4 pounds lime to 40 gallons of water. The quantities can also be reduced if a lesser amount of spray is required but this should be done equally with each ingredient. For example, ¼ lb. blue stone, ¼ lb. lime and 5 gallons water would still be of the same strength as the 2-2-40 mixture.

Sometimes lime is of poor quality and does not "kill" all the copper in the blue stone. In this case plants may be injured. A simple test is to suspend a shiny nail on a piece of string for 3 or 4 minutes. If after this time its appearance is unchanged the mixture is safe but if it develops a copper colour, more lime must be added.

Another test is to obtain some neutral litmus paper from the chemist. Soak a small piece of the paper in the spray and if it turns blue the spray is safe but if it turns red more lime is required.

### LIME SULPHUR.

This is also a valuable fungicide and can be combined with D.D.T. for the control of sap-sucking and chewing insects. It is useful for the control of mildews and similar fungus troubles on Carnations, Roses, Iceland Poppies and Fruit trees. It is preferable to obtain this ready-mixed and used at the proportions advised by the maker of the brand purchased.

Like all sulphur preparations, it should not be used on Pumpkins.

### COLLOIDAL SULPHUR.

This is an improved form of Flowers of Sulphur, so finely divided that it can be sprayed on to the plants. Where the Flowers of Sulphur might be difficult to apply under certain conditions, Colloidal Sulphur is much more preferable and because of its powers of penetration it is largely superseding Flowers of Sulphur for a mildew-resistant spray.

### CORROSIVE SUBLIMATE.

A deadly poison which is to be mixed only in a porcelain or wooden container. Its use is recommended for the immersion of Gladioli bulbs when diseased, for which purpose it is diluted 1 ounce to 2½ gallons of water. It is also a very effective chemical for the control of Wire Stem in seedlings (see page 213 for treatment), and also Root and Crown Rot in larger plants. The treatment for the latter disease is as follows: 1 ounce of Corrosive Sublimate is mixed with 12 gallons of water by first dissolving in a small quantity of hot water and then adding the balance. All plants should be thoroughly drenched around the crown with the solution after first loosening the soil surface. It can be watered in with an ordinary watering can, and one application is usually effective, but in stubborn cases two or three may be necessary. It is advisable not to touch the solution with the hands.

### FORMALIN.

A useful soil steriliser for the destruction of many fungus organisms which are particularly destructive to seedlings. The treatment is as follows:—

1 part of Formalin is mixed with 50 parts of water. The ground is first loosened thoroughly and approximately ½ to 1 gallon of the Formalin solution is watered in to a square foot of ground. This quantity can be varied, but the soil should be thoroughly soaked. After watering, the seed bed is covered for 12 hours with clean boards, bags or several thicknesses of newspaper. After removal of the covering, the soil is turned over several times during a period of two weeks, allowing the fumes to escape before sowing.

### COPPER OXYCHLORIDE.

This has been found valuable for such diseases as downy mildew, damping off of seedlings and leaf spot. It is available under various trade names, such as "Oxi-Cop" and "Cuprox." When used on Onions for downy mildew it is necessary to add an adhesive such as white oil, ½ pound to 12 gallons of solution.

For general spraying, Copper Oxychloride is mixed at the rate of 1 ounce to 2½ gallons of water. It is also valuable for treating seeds before sowing, thus eliminating any harmful bacteria that they might carry.

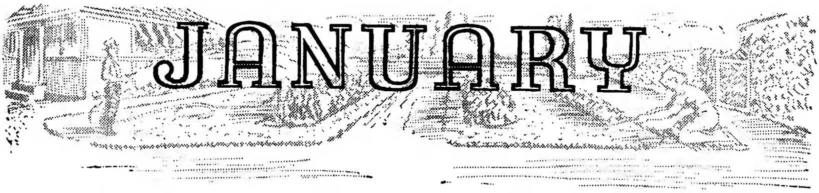
### PERMANGANATE OF POTASH.
### (Condy's Crystals).

A simple home remedy for the control of some fungus diseases, such as the yellowing of Iceland Poppy plants and Sweet Peas. It should be used at the rate of ⅓ ounce to 4 gallons of water.

## CHAPTER 15.

# MONTH BY MONTH IN THE GARDEN.

**Flower and Vegetable Seed sowings for the whole year, as well as plantings of all popular Flowering Bulbs and Perennials.**



## JANUARY

### FLOWER SEED SOWINGS.

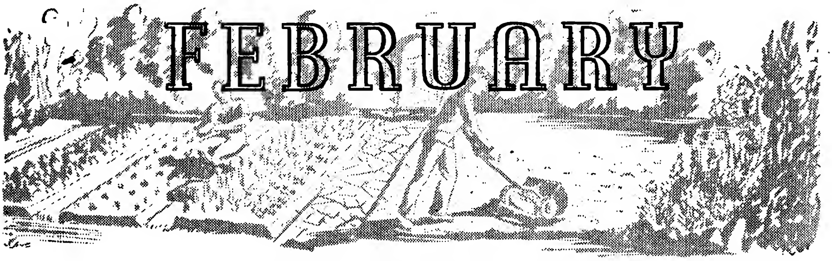
**Acroclinium** (Everlasting)
**Ageratum**
**Alyssum**
**Anchusa**
**Anemone**
**Antirrhinum** (Snapdragon)
**Aquilegia** (Columbine)
**Arctotis**
**Balsam**
**Brachycome** (Swan River Daisy)
**Calendula** (Broad-leaved Marigold)
**Candytuft**
**Carnation**
**Christmas Bush**
**Cineraria**
**Cosmos**
**Dianthus**
**Everlasting Daisy** (Acroclinium)
**Freesia**
**Gaillardia**
**Gerbera**
**Geum**
**Globe Amaranth** (Gomphrena)
**Gypsophila**
**Leptosyne** (Yellow Marguerite)
**Linaria**
**Lupin**
**Marigold** (French)
**Mathiola** (Night-scented Stock)
**Mignonette**
**Nasturtium**
**Nemesia**
**Pansy**
**Petunia**
**Phlox**
**Poor Man's Orchid** (Schizanthus)
**Poppy** (Iceland)
**Portulaca**
**Primula Malacoides**
**Ranunculus**
**Saponaria**
**Scabiosa**
**Schizanthus** (Poor Man's Orchid)
**Snapdragon** (Antirrhinum)
**Statice** (Annual)
**Stock**
**Sweet Pea**
**Sweet William**
**Sweet Wivelsfield**
**Venidium**
**Verbena**
**Viola**
**Wallflower**
**Zinnia** (Early January)

### VEGETABLE SEED SOWINGS.

**Bean** (French, Wax and Climbing)
**Beet**
**Silver Beet**
**Broccoli** (Green)
**Brussels Sprouts**
**Cabbage**
**Carrot**
**Cauliflower**
**Celtuce**
**Cress**
**Endive**
**Kohl Rabi**
**Lettuce**
**Mustard**
**Parsley**
**Parsnip**
**Pea**
**Radish**
**Salsify**
**Swede**
**Turnip**
**Tomato**

### FLOWERING BULBS.

**Agapanthus**
**Amaryllis**
**Billbergia**
**Brunsvigia**
**Canna**
**Clivia**
**Crinum**
**Cyclamen**
**Hippeastrum**
**Nerine**
**Scilla** (Blue Bell)
**Sternbergia**
**Vallota**



# FEBRUARY

## FLOWER SEED SOWINGS.

If you have made up your mind to top-dress the lawn this year and have not yet done so, it should not be left any longer, because most grasses grow very slowly from now on and do not satisfactorily push their way through the topping. It generally means that a large quantity of it is blown away before the grasses have grown over it. Do not "swamp" the lawn with soil, but make a light dressing that still leaves the top of the grass showing. Use a good weed-free loam.

Dahlias will probably need some attention, and should be making steady growth. Do not force them by overwatering, which will result in weak, sappy stems. Select the four strongest lateral growers of the Decorative and large Cactus Dahlias, removing the remainder. Leave all laterals on the Charm and Pompone types.

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**Acroclinium** (Everlasting Daisy)
**Ageratum**
**Alonsoa**
**Anchusa**
**Anemone**
**Antirrhinum** (Snapdragon)
**Aquilegia** (Columbine)
**Arctotis**
**Aubretia**
**Bellis Perennis** (Double Daisy)
**Blue Lace Flower** (Didiscus)
**Brachycome** (Swan River Daisy)
**Calendula** (Broad-leaved Marigold)
**Candytuft**
**Canterbury Bells**
**Carnation**
**Centaurea** (Cornflower)
**Cheiranthus**
**Christmas Bush**
**Chrysanthemum** (Annual) (Painted Daisy)
**Cineraria**
**Clarkia**
**Cornflower** (Centaurea)
**Cynoglossum**
**Delphinium**
**Dianthus**
**Didiscus** (Blue Lace Flower)
**Everlasting Daisy** (Acroclinium)
**Forget-Me-Not**
**Foxglove**
**Freesia**
**Gaillardia**
**Geum**
**Godetia**
**Grasses** (Ornamental)
**Gypsophila**
**Helichrysum** (Straw Flower)
**Heliotrope**
**Hollyhock**
**Ipomopsis**
**Larkspur**
**Lavender Shower** (Thalictrum)
**Leptosyne** (Yellow Marguerite)
**Linaria**
**Linum**
**Lobelia**
**Lupin**
**Marigold** (French)
**Mathiola** (Night-scented Stock)
**Mignonette**
**Mimulus**
**Nasturtium**
**Nemesia**
**Nemophila**
**Nierembergia**
**Nigella** (Love-in-a-Mist)
**Painted Daisy** (Ann. Chrysanthemum)
**Pansy**
**Pea, Perennial**
**Pentstemon**
**Petunia**
**Phacelia**
**Phlox**
**Platycodon**
**Polyanthus**
**Poor Man's Orchid** (Schizanthus)
**Poppy** (Iceland)
**Portulaca**
**Primrose**
**Primula**
**Pyrethrum**
**Ranunculus**
**Saponaria**
**Scabiosa** (Pin Cushion)
**Schizanthus** (Poor Man's Orchid)
**Snapdragon** (Antirrhinum
**Statice** (Annual)
**Straw Flower** (Helichrysum)
**Stock**
**Sweet Pea**
**Sweet Sultan** (Centaurea)
**Sweet William**
**Sweet Wivelsfield**
**Thalictrum** (Lavender Shower)
**Venidium**
**Verbena**
**Viola**
**Virginian Stock**
**Wallflower**

## February (continued).

## VEGETABLE SEED SOWINGS.

For the vegetable gardener, February is a month to remember. In most districts it is probably the last opportunity to sow for Winter vegetables, and there are plenty to choose from, as you will see by the sowing calendar below. The quick maturing varieties of Cabbage, such as Yates' First Early Improved, Yates' Earliball, Enkhuizen Glory, and even Succession, can be sown now. The earliest of these will be ready under normal conditions within 10/12 weeks of planting out the seedlings. But don't leave the preparation of the ground until the seedlings are ready for putting out. Dig it over the same time as you sow the seeds, and leave it in its rough state. Cauliflowers can go in this month also, and the sooner the better. They require a good, long-growing period of warm weather if they are to "flower" successfully in the Winter.

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**Bean** (Dwarf French and Wax)
**Beet**
**Silver Beet**
**Borecole**
**Broccoli** (Green)
**Brussels Sprouts**
**Cabbage**
**Carrot**
**Cauliflower**
**Celtuce**
**Cress**
**Endive**
**Herbs** (Mild climates)
**Kohl Rabi**
**Lettuce**
**Mustard**
**Onion**
**Parsley**
**Parsnip**
**Pea**
**Radish**
**Rhubarb**
**Spinach**
**Swede**
**Turnip**

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## FLOWERING BULBS.

**Agapanthus**
**Amaryllis**
**Anemone**
**Anomatheca**
**Babiana**
**Billbergia**
**Brunsvigia**
**Canna**
**Clivia**
**Crinum**
**Crocus**
**Cyclamen**
**Daffodil**
**Freesia**
**Hemerocallis**
**Hippeastrum**
**Hyacinth**
**Iris** (All Classes)
**Ixia**
**Kniphofia**
**Lachenalia**
**Leucocoryne** (Glory of the Sun)
**Lilium** (Longiflorum and Candidum)
**Muscari**
**Narcissus**
**Nerine**
**Ornithogalum**
**Ranunculus**
**Scilla**
**Snowflake**
**Sparaxis**
**Tritonia**
**Tulip**
**Vallota**
**Watsonia**

## PLANTING GUIDE

**Bouvardia**
**Ferns**
**Pentstemon**
**Perennial Phlox**
**Palms**
**Shrubs** (Most varieties)
**Trees** (Most varieties)

## ROOTS, TUBERS, Etc.

**Potato Onion, Potato, Rhubarb, Shallot, Tree Onion**

*Inspecting trial rows of flowering annuals, such as Pansies, Dianthus, etc., at Yates' New South Wales Trial Grounds. Note the sheltering belt of blue Lupins on the southerly side of these plants.*

# MARCH

## FLOWER SEED SOWINGS.

**Acroclinium** (Everlasting)
**Ageratum**
**Alonsoa**
**Alyssum**
**Anchusa**
**Anemone**
**Antirrhinum** (Snapdragon)
**Aquilegia** (Columbine)
**Aubretia**
**Bellis Perennis** (Double Daisy)
**Blue Lace Flower** (Didiscus)
**Calendula** (Broad-leaved Marigold)
**Calliopsis** (Perennial)
**Candytuft**
**Canterbury Bells**
**Carnation**
**Centaurea** (Cornflower)
**Cheiranthus**
**Chrysanthemum** (Annual) (Painted Daisy)
**Christmas Bush**
**Cineraria**
**Clarkia**
**Cornflower** (Centaurea)
**Cyclamen**
**Cynoglossum**
**Delphinium**
**Dianthus**
**Didiscus** (Blue Lace Flower)
**Dimorphotheca**
**Everlasting Daisy** (Acroclinium)
**Forget-Me-Not**
**Foxglove**
**Freesia**
**Gaillardia**
**Geum**
**Gladioli**
**Godetia**
**Grasses** (Ornamental)
**Gypsophila**
**Helichrysum** (Straw Flower)
**Heliotrope** (Cherry Pie)
**Heuchera**
**Hollyhock**
**Ipomopsis**
**Larkspur**
**Lavender Shower** (Thalictrum)
**Leptosyne** (Yellow Marguerite)
**Linaria** (Toad Flax)
**Linum**
**Lobelia**
**Lupin**
**Marigold** (French)
**Mathiola** (Night-scented Stock)
**Mignonette**
**Mimulus** (Monkey Flower)
**Nasturtium**
**Nemesia**
**Nemophila**
**Nierembergia** (Cup Flower)
**Nigella** (Love-in-a-Mist)
**Painted Daisy** (Annual Chrysanthemum)
**Pansy**
**Pea, Perennial**
**Pentstemon**
**Phacelia**
**Phlox**
**Platycodon**
**Polyanthus**
**Poor Man's Orchid** (Schizanthus)
**Poppy** (All varieties)
**Primrose**
**Primula**
**Pyrethrum** (Golden Feather)
**Ranunculus**
**Rhodanthe**
**Saponaria** (Big Gyp.)
**Scabiosa** (Pin Cushion)
**Schizanthus** (Poor Man's Orchid)
**Snapdragon** (Antirrhinum)
**Statice** (Sea Lavender)
**Stock**
**Straw Flower** (Helichrysum)
**Sweet Pea** (For Shows, sow middle March)
**Sweet Sultan** (Centaurea)
**Sweet William**
**Sweet Wivelsfield**
**Thalictrum** (Lavender Shower)
**Venidium**
**Verbena**
**Viola**
**Virginian Stock**
**Wallflower**

## VEGETABLE SEED SOWINGS.

**Bean** (French)
**Bean** (Broad)
**Beet**
**Broccoli**
**Silver Beet**
**Cabbage**
**Cress**
**Herbs**
**Kohl Rabi**
**Leek**
**Lettuce**
**Mustard**
**Onion**
**Parsley**
**Pea**
**Radish**
**Spinach**
**Turnip**

**ROOTS, TUBERS:** **Potato Onion** **Rhubarb** **Shallot** **Tree Onion**

**FLOWERING BULBS.**—All February plantings can be continued in March.

# APRIL

## FLOWER SEED SOWINGS.

**Acroclinium** (Everlasting)
**Ageratum**
**Alonsoa**
**Alyssum**
**Anchusa**
**Anemone**
**Antirrhinum** (Snapdragon)
**Aquilegia** (Columbine)
**Aubretia**
**Bellis Perennis** (Double Daisy)
**Blue Lace Flower** (Didiscus)
**Calendula** (Broad-leaved Marigold)
**Calliopsis** (Perennial)
**Candytuft**
**Canterbury Bells**
**Carnation**
**Centaurea** (Cornflower)
**Cheiranthus**
**Chrysanthemum** (Annual) (Painted Daisy)
**Clarkia**
**Cornflower** (Centaurea)
**Cyclamen**
**Cynoglossum**
**Delphinium**
**Dianthus**
**Didiscus** (Blue Lace Flower)
**Everlasting Daisy** (Acroclinium)
**Forget-Me-Not**
**Foxglove**
**Freesia**
**Gaillardia**
**Geum**
**Godetia**
**Grasses** (Ornamental)
**Gypsophila**
**Helichrysum** (Straw Flower)
**Heliotrope** (Cherry Pie)
**Hollyhock**
**Ipomopsis**
**Larkspur**
**Leptosyne** (Yellow Marguerite)
**Linaria** (Toad Flax)
**Linum**
**Lobelia**
**Lupin**
**Marigold** (French)
**Mathiola** (Night-scented Stock)
**Mignonette**
**Mimulus** (Monkey Flower)
**Nasturtium**
**Nemesia**
**Nemophila**
**Nierembergia** (Cup Flower)
**Nigella** (Love-in-a-Mist)
**Painted Daisy** (Annual Chrysanthemum)
**Pansy**
**Pea, Perennial**
**Pentstemon**
**Phacelia**
**Platycodon**
**Polyanthus**
**Poor Man's Orchid** (Schizanthus)
**Poppy** (All varieties)
**Primrose**
**Primula**
**Pyrethrum** (Golden Feather)
**Ranunculus**
**Saponaria** (Big Gyp.)
**Scabiosa** (Pin Cushion)
**Schizanthus** (Poor Man's Orchid)
**Snapdragon** (Antirrhinum)
**Statice** (Annual)
**Stock**
**Straw Flower** (Helichrysum)
**Sweet Pea**
**Sweet Sultan** (Centaurea)
**Sweet William**
**Sweet Wivelsfield**
**Venidium**
**Verbena**
**Viola**
**Virginian Stock**
**Wallflower**

## VEGETABLE SEED SOWINGS.

**Bean** (Broad)
**Cabbage**
**Cress**
**Leek** (Mild climates)
**Lettuce**
**Mustard**
**Onion**
**Pea**
**Radish**
**Spinach**

## PLANTING GUIDE.

**Citrus Trees**
**Ornamental Trees**
**Ornamental Shrubs**
**Carnations**
**Gerberas**
**Pelargoniums**
**Pentstemons**
**Roses**

## ROOTS, TUBERS, Etc.

**Garlic**
**Mushroom Spawn**
**Potato Onion**
**Shallot**
**Tree Onion**

## FLOWERING BULBS.

Varieties for February may all be planted this month with the addition of **Calla**, **Sprekelia**, **Polygonatum**, **Tuberose**, and **Tulbaghia**.

## FLOWER SEED SOWINGS.

**Acroclinium** (Everlasting)
**Ageratum**
**Alonsoa**
**Alyssum**
**Antirrhinum** (Snapdragon)
**Aubretia**
**Bellis Perennis** (Double Daisy)
**Calendula** (Broad-leaved Marigold)
**Calliopsis** (Perennial)
**Candytuft**
**Canterbury Bells**
**Carnation**
**Centaurea** (Cornflower)
**Cheiranthus**
**Chrysanthemum** (Annual) (Painted Daisy)
**Clarkia**
**Cornflower** (Centaurea)
**Cyclamen**
**Delphinium**
**Dianthus**
**Everlasting Daisy** (Acroclinium)
**Gaillardia**
**Geum**
**Gloxinia**
**Godetia**
**Grasses** (Ornamental)
**Gypsophila**
**Heliotrope** (Cherry Pie)
**Heuchera**
**Ipomopsis**
**Larkspur**
**Leptosyne** (Yellow Marguerite)
**Linaria** (Toad Flax)
**Lobelia**
**Lupin**
**Marigold** (French)
**Mathiola** (Night-Scented Stock)
**Mignonette**
**Mimulus** (Monkey Flower)
**Nemesia**
**Nemophila**
**Nierembergia**
**Painted Daisy** (Annual Chrysanthemum)
**Pansy**
**Pentstemon**
**Phacelia**
**Poor Man's Orchid** (Schizanthus)
**Poppy** (All varieties)
**Primula**
**Pyrethrum**
**Saponaria** (Big Gyp.)
**Scabiosa** (Pin Cushion)
**Schizanthus** (Poor Man's Orchid)
**Snapdragon** (Antirrhinum)
**Statice** (Sea Lavender)
**Stock**
**Sweet Pea**
**Sweet Sultan** (Centaurea)
**Sweet William**
**Sweet Wivelsfield**
**Verbena**
**Viola**
**Virginian Stock**
**Wallflower** (Early)

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## VEGETABLE SEED SOWINGS.

**Bean** (Broad)
**Cabbage** (Early Sorts)
**Cress**
**Leek**
**Lettuce**
**Onion**
**Mustard**
**Pea** (Mild districts)
**Radish**
**Spinach**
**Turnip**

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## PLANTING GUIDE.

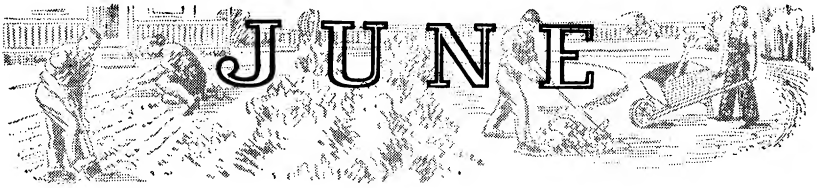
Repeat the plantings for April with the addition of:
**Summer Fruits** (Apples, etc.)
**Grape Vines**
**Strawberries**
**Berry-Bearing Plants** (Raspberries, etc.)

## ROOTS, TUBERS, Etc.

**Asparagus**
**Garlic**
**Herbs**
**Mushroom Spawn**
**Rhubarb**

## FLOWERING BULBS.

See February.
Also plant—
**Calla**
**Lily of the Valley**
**Sprekelia** (Jacobean Lily)
**Tuberose**
**Tulbaghia**
**Zephyranthes**



## FLOWER SEED SOWINGS.

In cold climates these should be sown under shelter. In very cold climates defer sowing until Spring.

**Ageratum**
**Alyssum**
**Antirrhinum** (Snapdragon)
**Calendula** (Broad-leaved Marigold)
**Calliopsis** (Perennial)
**Candytuft**
**Canterbury Bells**
**Carnation**
**Centaurea** (Cornflower)
**Chrysanthemum** (Annual) (Painted Daisy)
**Clarkia**
**Cornflower** (Centaurea)
**Cyclamen**
**Delphinium**
**Dianthus**
**Gaillardia**
**Geum**
**Gloxinia**
**Godetia**
**Gypsophila**
**Larkspur**
**Linaria** (Toad Flax)
**Lupin**
**Mignonette**
**Nemesia**
**Painted Daisy** (Annual Chrysanthemum)
**Pansy**
**Poppy** (Shirley and Queen)
**Saponaria** (Big Gyp.)
**Scabiosa** (Pin Cushion)
**Snapdragon** (Antirrhinum)
**Statice** (Annual)
**Sweet Pea**
**Sweet Sultan** (Centaurea)
**Verbena**
**Viola**
**Virginian Stock**
**Wallflower** (Early)

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## VEGETABLE SEED SOWINGS.

**Bean** (Broad))
**Cabbage** (Early Sorts)
**Cress**
**Lettuce**
**Mustard**
**Onion** (Brown Spanish)
**Pea** (Mild districts)
**Radish**
**Rhubarb**

## PLANTING GUIDE.

### ROOTS, TUBERS, Etc.

**Artichoke** (Jerusalem)
**Asparagus**
**Choko**
**Garlic**
**Herbs**
**Horse Radish**
**Mushroom Spawn**
**Rhubarb**

**Roses**
**Ornamental Trees**
**Ornamental Shrubs**
**Climbing Plants**
**Canna**
**Carnation**
**Summer Fruits** (Such as Apples)
**Citrus Fruits** (Mild climates)
**Berry Fruits**
**Grapes**

(Young Evergreen Trees and Shrubs should be protected from frost and cold winds.)

## FLOWERING BULBS.

**Agapanthus**
**Alstroemeria**
**Anemone**
**Billbergia**
**Calla**
**Clivia**
**Crinum**
**Crocus**
**Gladioli**
**Gloriosa Superba**
**Hemerocallis** (Day Lily)
**Iris** (Flag and Japanese)
**Kniphofia** (Red Hot Poker)
**Lilium**
**Lily of the Valley**
**Montbretia**
**Ornithogalum** (Cool climates)
**Paeony** (Herbaceous)
**Polygonatum**
**Ranunculus**
**Scilla**
**Sprekelia** (Jacobean Lily)
**Tigridia**
**Tuberose**
**Tulbaghia**
**Vallota**
**Watsonia**

## FLOWER SEED SOWINGS.

In cold climates these should be sown under shelter. In very cold climates defer sowing until Spring.

**Ageratum**
**Alyssum**
**Antirrhinum**
(Snapdragon)
**Begonia** (Tuberous)
**Calendula** (Broad-leaved Marigold)
**Candytuft**
**Carnation**
**Centaurea**
(Cornflower)
(Cool climates)
**Chrysanthemum**
(Annual)
(Painted Daisy)
**Clarkia**
**Cornflower**
(Centaurea)
**Cyclamen** .
**Delphinium**
**Dianthus**
**Gaillardia**
**Geum**
**Gloxinia**
**Godetia**
**Gypsophila**
**Larkspur**
**Linaria** (Toad Flax)
**Lobelia**
**Lupin**
**Mignonette**
**Nemesia**
(Cool climates)
**Painted Daisy**
(Annual Chrysanthemum)
**Poppy** (Shirley and Queen)
**Saponaria**
**Scabiosa**
(Pin Cushion)
**Snapdragon**
(Antirrhinum)
**Statice**
(Sea Lavender)
**Sweet Pea**
**Sweet Sultan**
(Centaurea)
**Verbena**
**Virginian Stock**

## PLANTING GUIDE.

Repeat all plantings recommended for June.

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## VEGETABLE SEED SOWINGS.

**Cabbage**
(Early varieties)
**Cress**
**Lettuce**
**Mustard**
**Onion**
(Brown Spanish)
**Pea**
**Radish**
**Rhubarb**
**Tomato**
(Sow under cover in frames.)

## ROOTS, TUBERS, ETC.

**Asparagus**
**Garlic**
**Artichoke**
**Herbs**
**Horse Radish**
**Mushroom Spawn**
**Potato**
**Rhubarb**

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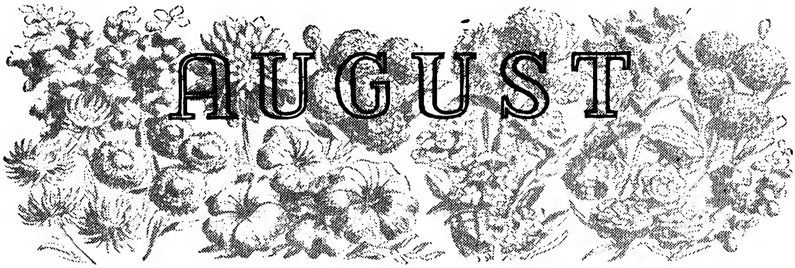
## FLOWERING BULBS

**Agapanthus**
**Alstroemeria**
**Begonia** (Tuberous)
**Billbergia**
**Calla**
**Clivia**
**Crinum**
**Gladioli**
**Hemerocallis** (Day Lily)
**Iris** (Flag and Japanese)
**Kniphofia**
(Red Hot Poker)
**Lilium**
**Lily of the Valley**
**Montbretia**
**Paeony** (Herbaceous)
(Cool climates)
**Polygonatum**
**Sprekelia**
(Jacobean Lily)
**Tigridia**
**Tuberose**
**Tulbaghia**
**Vallota**

**Other useful Sowing Hints are printed on the back of every packet of Yates' Reliable Seeds — Obtainable from your local Yates' distributor.**



# AUGUST

## FLOWER SEED SOWINGS.

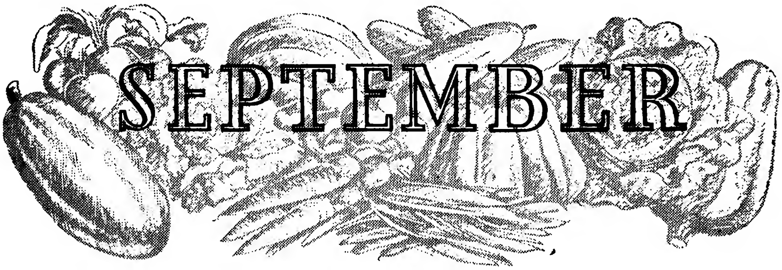
**Ageratum**
**Alyssum**
**Antirrhinum** (Snapdragon)
**Arctotis**
**Aster**
**Begonia**
**Blue Lace Flower** (Didiscus)
**Boronia** (Sweet-scented Brown)
**Brachycome** (Swan River Daisy)
**Calliopsis** (Annual)
**Candytuft**
**Canna**
**Capsicum** (Ornamental)
**Carnation**
**Chrysanthemum** (Perennial)
**Clianthus** (Sturt's Desert Pea)
**Cuphea**
**Cyclamen**
**Delphinium**
**Dianthus**
**Didiscus** (Blue Lace Flower)
**Dimorphotheca** (African Golden Daisy)
**Gaillardia**
**Geum**
**Gladioli**
**Globe Amaranth** (Gomphrena)
**Gloxinia**
**Godetia**
**Gypsophila**
**Helichrysum** (Straw Flower)
**Impatiens**
**Kochia** (Summer Cypress)
**Lavender Shower** (Thalictrum)
**Marigold** (African)
**Matricaria** (Camomile)
**Mignonette**
**Nasturtium**
**Pea, Perennial**
**Petunia**
**Phlox**
**Poinciana** (Bird of Paradise Flower)
**Pomegranate**
**Poppy** (Shirley and Queen)
**Rhodanthe**
**Salpiglossis**
**Saponaria** (Big Gyp.)
**Scabiosa** (Pin Cushion)
**Shasta Daisy**
**Snapdragon** (Antirrhinum)
**Statice** (Sea Lavender)
**Stock** (Cold climates only)
**Straw Flower** (Helichrysum)
**Thalictrum** (Lavender Shower)
**Torenia**
**Verbena**

## VEGETABLE SEED SOWINGS.

**Artichoke** (Globe)
**Bean**
**Beet**
**Silver Beet**
**Cabbage**
**Cape Gooseberry**
**Carrot**
**Celery**
**Cress**
**Endive**
**Herbs**
**Kohl Rabi**
**Leek**
**Lettuce**
**Melon** (Mild climates)
**Mustard**
**Parsley**
**Parsnip**
**Pea**
**Radish**
**Rhubarb**
**Salsify** (Vegetable Oyster)
**Spinach**
**Tomato** (Sow under cover in frames.)
**Turnip**

**FLOWERING BULBS.**—**Achimene, Agapanthus, Alstroemeria, Begonia** (Tuberous), **Billbergia, Caladium, Calla, Clivia, Crinum, Gladioli, Gloxinia, Hemerocallis** (Day Lily), **Iris** (Flag and Japanese), **Kniphofia** (Red Hot Poker), **Lilium, Lily of the Valley, Montbretia, Paeony, Polygonatum, Sprekelia** (Jacobean Lily), **Tigridia, Tuberose, Tulbaghia, Vallota.**

**PLANTING GUIDE.**—**Artichoke, Asparagus, Choko, Potato, Rhubarb, Herbs, Horse Radish, Citrus Fruits, Ornamental Trees, Ornamental Shrubs, Climbing Plants, Canna.**



# SEPTEMBER

## FLOWER SEED SOWINGS.

It is at this time of the year that the gardener really gets down to business. Everything seems to work for him. The deciduous shrubs, Rose trees and Fruit trees start to send out new shoots and there is always something new to look at as each day passes.

It will be seen by the list below that there is an enormous number of flowers to choose from, and we must not overlook the splendid climbing plants that are so easily grown from the sowing of a few seeds. If these plants are not wanted permanently, they are valuable for covering the fence for two or three years until the shrubs are large enough to screen them. There are also the annual climbers which give protection in the hottest part of the summer, and begin to fade as the Autumn approaches. They are quick-growing and amazingly colourful. Among the most popular are Mina Lobata and Morning Glory.

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**Ageratum**
**Alyssum**
**Amaranthus**
**Antirrhinum** (Snapdragon)
**Arctotis**
**Asparagus**
**Aster**
**Balsam**
**Begonia** (Fibrous Rooted)
**Blue Lace Flower** (Didiscus)
**Boronia**
**Brachycome** (Swan River Daisy)
**Californian Poppy** (Eschscholtzia) (Annual)
**Calliopsis**
**Candytuft**
**Canna**
**Capsicum** (Ornamental)
**Carnation**
**Celosia** (Feathered Cockscomb)
**Chrysanthemum** (Perennial)
**Cockscomb**
**Coleus**
**Convolvulus** (Dwarf Morning Glory)
**Cosmos**
**Cuphea**
**Cyclamen**
**Dahlia**
**Delphinium**
**Dianthus**
**Didiscus** (Blue Lace Flower)
**Dimorphotheca** (African Golden Daisy)
**Eschscholtzia** (Californian Poppy)
**Euphorbia** (Snow on the Mountain)
**Flannel Flower**
**Gaillardia**
**Gerbera**
**Gladioli**
**Globe Amaranth** (Gomphrena)
**Gloxinia**
**Gypsophila**
**Helichrysum** (Straw Flower)
**Hunnemannia** (Mexican Poppy)
**Impatiens**
**Kochia**
**Lavender Shower** (Thalictrum)
**Marigold** (African)
**Matricaria** (Camomile)
**Mesembryanthemum**
**Mexican Poppy** (Hunnemannia)
**Mignonette**
**Nasturtium**
**Petunia**
**Phlox**
**Poinciana** (Bird of Paradise Flower)
**Pomegranate**
**Portulaca**
**Rhodanthe**
**Rudbeckia**
**Salpiglossis**
**Salvia**
**Saponaria**
**Scabiosa** (Pin Cushion)
**Sesbania**
**Shasta Daisy**
**Snapdragon** (Antirrhinum)
**Statice** (all varieties)
**Straw Flower** (Helichrysum)
**Sturt's Desert Pea**
**Sunflower**

# Scenes from Yates' Trial Grounds and Seed Farms

1. Strains from the world's leading lettuce growers are compared in Yates' field trials.
2. Dianthus for stock seed. Every plant is inspected by experts.
3. Bedding Petunias being checked for trueness of strain.
4. A glimpse of our Stock, Iceland Poppy and Lupin trials.

1

2

3

5. Yates' Champion Purple Top Swede Turnip being grown for seed.

4

6. Threshing Cauliflower seed stalks.

5

6

Larkspur for seed on Yates' Tasmanian Seed Farm — no wonder the Giant Imperial strain is so popular when blooms such as these can be so easily grown.

## SEPTEMBER

### Flower Seeds (cont.)

**Thalictrum**
(Lavender Shower)
**Tithonia**
(Mexican Sunflower)
**Torenia**
**Ursinia**
**Verbena**
**Viscaria**
**Zinnia**

### CLIMBING PLANTS (From Seed)

**Antigonon**
**Aristolochia**
(Dutchman's Pipe)
**Asparagus Plumosa**
**Bignonia Tweediana**
**Cobaea Scandens**
**Convolvulus**
(Morning Glory)
**Dolichos**
**Gourd**
**Ipomoea**
**Mina Lobata**
**Passion Vine**
**Phaseolus**
(Snail Flower)
**Thunbergia** (Gibsoni)

*Lettuce can be successfully grown at this time of the year if a suitable variety, such as Great Lakes or Imperial 847 is chosen, and if the plants are provided with ample water and manure.*

### VEGETABLE SEED SOWINGS.

**Asparagus**
**Artichoke** (Globe)
**Bean** (French, Wax and Climbing)
**Beet**
**Silver Beet**
**Cape Gooseberry**
**Carrot**
**Celery**
**Celtuce**
**Cress**
**Cucumber**
**Egg Plant**
**Endive**
**Gherkin**
**Herbs**
**Leek**
**Lettuce**
**Marrow**
**Melon**
**Mustard**
**Okra**
**Onion** (Spring)
**Parsley**
**Parsnip**
**Peanut**
**Pea**
(Early varieties)
**Pepper**
**Popcorn**
**Pumpkin**
**Radish**
**Rhubarb**
**Rosella**
**Salsify**
**Spinach**
**Squash**
**Sweet Corn**
**Tomato**

### FLOWERING BULBS.

**Achimene**
**Agapanthus**
**Begonia** (Tuberous)
**Billbergia**
**Caladium**
**Canna**
**Clivia**
**Crinum**
**Dahlia**
**Gladioli**
**Gloxinia**
**Lilium Gloriosa**
**Sprekelia**
(Jacobean Lily)
**Tigridia**
**Tuberose**
**Tulbaghia**
**Vallota**

### PLANTING GUIDE.

**Citrus Fruits**
**Ornamental Shrubs**
**Ornamental Trees**
**Passion Fruit**
**Dahlia**
**Chrysanthemum**
**Gerbera**
**Tree Begonia**

#### ROOTS, TUBERS, Etc.

**Choko**
**Horse Radish**
**Potato**

# OCTOBER

## FLOWER SEED SOWINGS.

Most of the flowering annuals and perennials suitable for September sowing can still go in this month. In fact, in some districts where frosts are very late they are best if left until now.

Asters in particular are an excellent choice for this month and, quite frequently, October-sown seedlings catch up to those put in last month. Asters resent cold conditions, and are often very slow during the early Spring months. If you have any soot (old) available, dig this into the Aster bed now and leave it until seedlings are ready to plant. It is an excellent tonic for these plants.

Look over the Roses and thumb-prune young shoots that are not wanted. You will probably find there are a number of ingrowing shoots, and these will be the ones to rub off. At this time of the year there are usually some Rose plants available in pots, which enables them to be transplanted even while they are in full growth.

Another reminder to sow quick-growing climbers is timely. Some perennials worth mentioning are Cobaea Scandens, Bignonia Tweediana, Aristolochia Elegans (Dutchman's Pipe), and Antigonon Leptopus.

**Ageratum**
**Alyssum**
**Amaranthus**
**Antirrhinum** (Snapdragon)
**Arctotis**
**Asparagus**
**Aster**
**Balsam**
**Begonia** (Fibrous Rooted)
**Boronia**
**Brachycome** (Swan River Daisy)
**Californian Poppy** (Eschscholtzia)
**Calliopsis** (Annual)
**Canna**
**Capsicum** (Ornamental)
**Carnation**
**Celosia**
**Chrysanthemum** (Perennial)
**Cockscomb**
**Coleus**
**Convolvulus** (Dwarf Morning Glory)
**Cosmos**
**Cuphea**
**Dahlia**
**Delphinium**
**Dianthus**
**Dimorphotheca**
**Eschscholtzia** (Californian Poppy)
**Euphorbia** (Snow on the Mountain)
**Flannel Flower**
**Gaillardia** (Annual)
**Gerbera**
**Globe Amaranth** (Gomphrena)
**Gypsophila**
**Hunnemannia**
**Kochia**
**Lavender Shower** (Thalictrum)
**Marigold** (African)
**Matricaria** (Camomile)
**Mesembryanthemum**
**Mignonette**
**Nasturtium**
**Petunia**
**Phlox**
**Poinciana** (Bird of Paradise Flower)
**Pomegranate**
**Portulaca**
**Rhodanthe**
**Rudbeckia**
**Salpiglossis**
**Salvia**
**Saponaria** (Big Gyp.)
**Sesbania**
**Shasta Daisy**
**Snapdragon** (Antirrhinum)
**Sturt's Desert Pea**
**Sunflower**
**Thalictrum** (Lavender Shower)
**Tithonia** (Mexican Sunflower)
**Torenia**
**Ursinia**
**Verbena**
**Viscaria**
**Zinnia**

### CLIMBING PLANTS.
(From Seed)

October sowings are the same as for September.

## **October** (continued).

## VEGETABLE SEED SOWINGS.

Those gardeners who want to be sure of a regular supply of Lettuce this Summer (and who doesn't) should choose suitable varieties. Imperial 847 is still the most widely grown Summer Lettuce. It does not easily bolt to seed during the warm weather, and providing ample water and manure is used in growing it, it makes first class salad Lettuce. Great Lakes is even more resistant to warm weather, although the leaves are somewhat coarser than Imperial 847. For a small sweet Lettuce, Mignonette is a good choice.

Those gardeners who are growing late Spring Cabbages should keep them well dusted with Derris Dust or D.D.T. at intervals of about 10 days between. Early Tomatoes will also need some attention. It is best to stake them when the seedlings are planted, but if it was not possible to do this, make sure it is done now. Keep the side shoots pruned out as described in our notes on this vegetable. There are a number of varieties of Dwarf Tomatoes that do not need staking and can be allowed to grow over the ground much in the same way as Cucumbers.

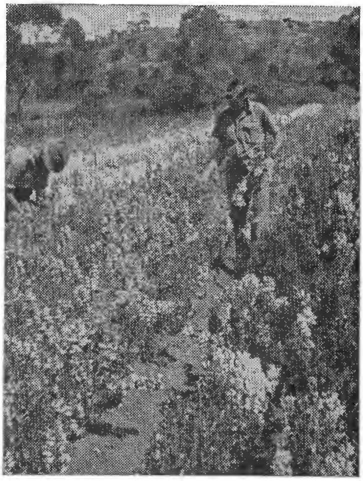
**Artichoke** (Globe)
**Asparagus**
**Bean** (French, Wax, and Climbing)
**Beet**
**Silver Beet**
**Cape Gooseberry**
**Carrot**
**Celery**
**Celtuce**
**Cress**
**Cucumber**
**Cyphomandra** (Tree Tomato)
**Egg Plant**
**Endive**
**Herbs**
**Leek**
**Lettuce**
**Marrow**
**Melon**
**Mustard**
**Okra**
**Parsnip**
**Pepper** (Capsicum)
**Popcorn**
**Pumpkin**
**Radish**
**Rhubarb**
**Rosella**
**Salsify** (Vegetable Oyster)
**Squash**
**Sweet Corn**
**Tomato**

## FLOWERING BULBS.

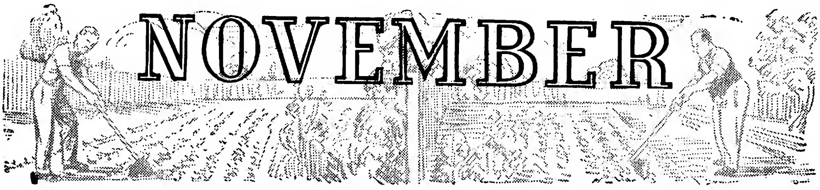
**Achimene**
**Agapanthus**
**Amaryllis**
**Begonia** (Tuberous)
**Billbergia**
**Caladium**
**Canna**
**Clivia**
**Crinum**
**Dahlia**
**Iris** (Bearded Flag)
**Lilium Gloriosa**
**Sprekelia** (Jacobean Lily)
**Tulbaghia**
**Vallota**

## PLANTING GUIDE.

**Chrysanthemum**
**Carnation**
**Coleus**
**Perennial Aster**
**Bougainvillea**
**Frangipanni**
**Palms**
**Ferns**
**Sweet Potato**
**Ornamental Trees**
**Ornamental Shrubs**
**Dahlia**



*We are continually inspecting our Crops to make sure that our strains are true to type. The above illustration shows a field of Antirrhinum at our Tasmanian Seed Farm under inspection.*



# NOVEMBER

## FLOWER SEED SOWINGS.

**Ageratum**
**Alyssum**
**Amaranthus**
**Antirrhinum** (Snapdragon)
**Arctotis**
**Asparagus**
**Aster**
**Balsam**
**Begonia** (Fibrous Rooted)
**Brachycome** (Swan River Daisy)
**Californian Poppy** (Eschscholtzia)
**Calliopsis** (Annual)
**Capsicum** (Ornamental)
**Carnation**
**Celosia**
**Cockscomb**
**Coleus**
**Convolvulus** (Dwarf Morning Glory)
**Cosmos**
**Dahlia**
**Dianthus**
**Dimorphotheca** (African Golden Daisy)
**Eschscholtzia** (Californian Poppy)
**Euphorbia** (Snow on the Mountain)
**Flannel Flower**
**Gaillardia** (Annual)
**Gerbera**
**Globe Amaranth** (Gomphrena)
**Gypsophila**
**Hunnemannia** (Mexican Poppy)
**Kochia** (Summer Cypress)
**Marigold** (African)
**Matricaria** (Camomile)
**Mesembryanthemum**
**Mexican Poppy** (Hunnemannia)
**Nasturtium**
**Petunia**
**Phlox**
**Poinciana** (Bird of Paradise Flower)
**Pomegranate**
**Portulaca**
**Rhodanthe**
**Rudbeckia**
**Salpiglossis**
**Salvia**
**Saponaria** (Big Gyp.)
**Sesbania**
**Snapdragon** (Antirrhinum)
**Sturt's Desert Pea**
**Sunflower**
**Tithonia** (Mexican Sunflower)
**Torenia**
**Ursinia**
**Verbena**
**Viscaria**
**Zinnia**

### CLIMBING PLANTS.
(From Seed)

September and October sowings of these plants can be continued if young seedlings are protected from hot sun.

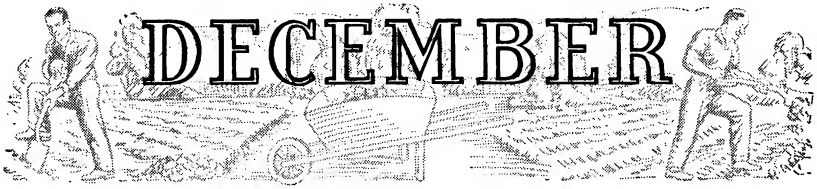
## VEGETABLE SEED SOWINGS.

**Bean** (French, Wax and Climbing)
**Beet**
**Silver Beet**
**Broccoli**
**Brussels Sprouts**
**Cape Gooseberry**
**Carrot**
**Cauliflower**
**Celery**
**Celtuce**
**Cress**
**Cucumber**
**Cyphomandra** (Tree Tomato)
**Egg Plant**
**Endive**
**Herbs**
**Lettuce**
**Marrow**
**Melon**
**Mustard**
**Okra**
**Parsley**
**Parsnip**
**Pepper** (Capsicum)
**Popcorn**
**Pumpkin**
**Radish**
**Rhubarb**
**Rosella**
**Salsify** (Vegetable Oyster)
**Squash**
**Sweet Corn**
**Tomato**
**Turnip, Swede**

**FLOWERING BULBS.—Agapanthus, Amaryllis, Begonia** (Tuberous), **Billbergia, Brunsvigia, Canna, Clivia, Crinum, Dahlia, Sprekelia** (Jacobean Lily), **Sternbergia, Vallota.**

**PLANTING GUIDE.—Ornamental Trees, Ornamental Shrubs, Chrysanthemum, Dahlia, Frangipanni, Bougainvillea, Palms, Ferns, Passion Fruit, Sweet Potato.**

## VEGETABLE SEED SOWINGS.



## FLOWER SEED SOWINGS.

**Ageratum**
**Alyssum**
**Amaranthus**
**Antirrhinum** (Snapdragon)
**Arctotis**
**Aster**
**Balsam**
**Brachycome** (Swan River Daisy)
**Californian Poppy** (Eschscholtzia)
**Capsicum** (Ornamental)
**Carnation**
**Celosia**
**Cockscomb**
**Coleus**
**Convolvulus** (Dwarf)
**Cosmos**
**Dianthus**
**Eschscholtzia** (Californian Poppy)
**Euphorbia** (Snow on the Mountain)
**Flannel Flower**
**Gaillardia** (Annual)
**Gerbera**
**Globe Amaranth** (Gomphrena)
**Kochia**
**Marigold** (All varieties)
**Mesembryanthemum**
**Nasturtium**
**Pansy**
**Petunia**
**Phlox**
**Poor Man's Orchid** (Schizanthus)
**Poppy** (Iceland)
**Portulaca**
**Primula**
**Rudbeckia**
**Saponaria**
**Schizanthus** (Poor Man's Orchid)
**Snapdragon** (Antirrhinum)
**Stock**
**Sturt's Desert Pea**
**Sunflower**
**Sweet Pea**
**Tithonia** (Mexican Sunflower)
**Torenia**
**Tweedia**
**Verbena**
**Viola**
**Viscaria**
**Wallflower**
**Zinnia**

**Bean** (French, Wax, and Climbing)
**Beet**
**Silver Beet**
**Broccoli**
**Brussels Sprouts**
**Cabbage**
**Carrot**
**Cauliflower**
**Celery**
**Celtuce**
**Cress**
**Cucumber**
**Egg Plant**
**Endive**
**Herbs**
**Lettuce**
**Marrow**
**Melon**
**Mustard**
**Okra**
**Parsley**
**Parsnip**
**Popcorn**
**Pumpkin**
**Radish**
**Rosella**
**Salsify**
**Squash** (Bush)
**Sweet Corn**
**Tomato**
**Turnip**
**Swede**

## FLOWERING BULBS.

**Agapanthus**
**Amaryllis**
**Billbergia**
**Brunsvigia**
**Canna**
**Clivia**
**Crinum**
**Cyclamen**
**Dahlia**
**Nerine**
**Sternbergia**
**Vallota**

## PLANTING GUIDE.

**Ornamental Trees**
**Ornamental Shrubs**
**Passion Fruit**
**Palms**
**Ferns**
**Sweet Potato**

## CHAPTER 16.

# VARIETIES FOR THE HOME GARDEN.

## VEGETABLES

### (For Flower Seeds, see page 238)

**The following list of Vegetable Seeds is based on experience of Australasian conditions and gardening requirements extending over a period of over 60 years, and in addition field tests have been consistently carried on for well over a quarter of a century at our trial grounds. In these "trials" we grow to maturity not only our own main lines, but also samples obtained from various parts of the world, thereby ensuring that our list contains the finest types and best strains obtainable.**

### ARTICHOKE.

**Green Globe**—Grown from seed for its edible flowers or buds.

**Jerusalem** — Propagated from tubers only. See page 43.

### ASPARAGUS.

Sow in Spring and transplant the roots from June to September.

**Mary Washington**—An old-time favourite and noted for its strong, thick shoots, as well as resistance to rust or blight.

### BEANS.

All the following Beans should be planted in the Spring after the danger of frosts is over, and from then on at intervals throughout the Summer. In warm, sheltered districts where Winters are extremely mild, sowings may also be made in the late Summer and early Autumn months, but they will not stand frosts.

#### DWARF FRENCH BEANS.

#### (String Types).

An increasing number of varieties of this type of Bean is being produced each year, but some of them are so close to existing varieties in practically all respects that they have only a limited value. To test new varieties we make extensive comparative trials throughout the season and in addition to inspection of growing crops, we are thus able to assess their merits.

BEANS (continued)—

**Beans—Hawkesbury Wonder.**

**Brown Beauty (Green Podded)** — For hot weather planting; bears a heavy crop of nicely shaped, fleshy Beans, but as there are no following crops, successive sowings are advisable.

**Canadian Wonder (Green Podded)**—Still a great favourite because of its quality and ability to produce a heavy crop over a long period. Has a tendency to contract Blight rather easily and is therefore not now so widely grown as previously.

**Hawkesbury Wonder (Green Podded)**—Valuable for planting when the weather is cooler, such as Spring and Autumn, and shows some resistance to bacterial blight.

**Wellington Wonder (Green Podded)**—A valuable variety for Spring and Autumn sowings and an excellent cropper. Good pods slightly longer than Canadian Wonder.

**Tweed Wonder (Green Podded)**—A selection from Canadian Wonder and a very vigorous grower. Good for early sowings and pods cook to perfection.

**Staley's Surprise (Green Podded)**—Bears larger pods than any of the French Beans, and although they tend to curl badly in very hot weather this variety is often sought after for growing in cool conditions.

**New Discovery (or Improved Feltham Prolific) (Green Podded)** — A hardy variety which shows ability to bear under fairly difficult conditions. Pods are flat, medium size and of good colour and flavour. They should be picked when young. Widely grown in the cooler districts, such as Victoria.

**Windsor Long Pod**—A cross between Wellington Wonder and Clarendon Wonder with the result being a heavy crop of long fleshy pods produced over an extended picking period. Earlier than Wellington Wonder, being in season with Brown Beauty. Fair resistance to disease.

#### WAX VARIETIES.

**Yates' Bountiful (Yellow Podded)**—A much improved Dwarf Butter Bean and one that will appeal to those gardeners who favour this type. The pods are tender, meaty and brittle, being stringless and sweet eating. Plants are branching, sturdy and upright, and carry a heavy crop of large pods.

#### STRINGLESS DWARF FRENCH BEANS.

These have been widely grown in America for some years, particularly for canning

**BEANS** (continued)—

and quick freezing. With the introduction of new varieties, there is no doubt a future for them in Australia, mainly as commercial crops, but home gardeners and housewives will no doubt appreciate the value of growing stringless Beans and they are certain to become popular.

**Yates Tendergreen**—The finest stringless bean introduced to Australia after exhaustive tests and comparisons at Yates Trial Grounds. The large crop of meaty pods are borne in a flush crop with ample second pickings a little later on. This variety has shown good resistance to disease and is highly recommended.

### CLIMBING or POLE BEANS.

Because of their ability to crop over a long period and the small amount of space required in comparison to Dwarf Beans, these deserve to be even more widely grown than at present. All the standard green podded varieties bear good pods that cook to perfection.

**Epicure (Green Podded)** — Still tremendously popular with home gardeners who like the nicely shaped pods which, when young, are practically stringless and beautifully tender.

**Scotia (Green Podded)**—Rapidly gaining favour because of its ability to crop well under difficult conditions. Bears heavy crops of round, almost stringless pods, but very fleshy.

**Golden Harvest or Glory of Summer (Green Podded)** — A vigorous climber, bearing heavy crops of oval pods up to 10 inches long and of excellent flavour.

**Westralia—(Green Podded)**— An interesting new variety developed in Western Australia. It is noted for its heavy crop, strong vines and heavy foliage, and is resistant to the common bean rust. The beans grow up to ten inches in length, are flattened in appearance and dark green in colour. Recommmended for the home garden.

**Snake or Yard Long (also called Asparagus Bean) (Green Podded)**—The Stringless pods are often from 18 to 24 inches in length but should be picked when young. A hardy variety that thrives in hot inland areas where other Beans may be difficult to grow.

**Scarlet Runner (Green Podded)**—A very old variety but still a great favourite in cool districts. In addition to the fine quality Beans, bears attractive bright scarlet flowers.

**Tongan or Poor Man's Bean (Green Podded)**—Immense quantities of flat Beans 2-5 inches long and up to 1½ inches wide. Should be picked and cooked whilst in the young stage, like French Beans. Suitable for tropical climates where they can be grown as perennials, but not suitable for climates colder than Sydney.

**New Guinea Butter Bean (Guada Bean)**—Actually more like a Marrow than a Bean, being a member of the Gourd family.

**Madagascar (Green Podded)**—Another variety suited to tropical and sub-tropical districts where it can be grown as a perennial, but in cooler climates should be treated as an annual. Flat pods are borne in clusters and cook delightfully tender if picked young. Seeds of matured Beans can be used as dry haricots.

## BROAD BEANS.

*Sow March to June.*

**Early Long Pod (Leviathan)**—Very reliable and under most conditions gives the highest yield.

**Cole's Dwarf Prolific**—Very popular where area is limited. The dwarf, sturdy plants grow 2 feet high and bear good crops.

## BEETROOT.

*Sow August to March.*

**Yates' Derwent Globe**—An almost perfectly rounded Beet and noted for its splendid texture and dark colour.

**Early Wonder (Rapid Red)**—The smooth roots are ready for pulling in about ten weeks and cook well.

**Turnip Rooted**—A quick-growing Beet for warm weather planting and splendid for the table.

**Obelisk**—Tankard shaped root; it takes longer to mature than others but cooks perfectly.

## SILVER BEET.

*Sow July to March.*

**Fordhook Giant**—The most popular because of its immense dark green crinkled leaves.

**Lucullus**—Light green leaves.

## BORECOLE.

**(Scotch Kale or Curly Green).**

*Sow November to January.*

**Dwarf Green Curled**—Dwarf growing plants; heavily curled leaves.

## BROCCOLI.

*Sow November to March.*

**Yates' Green Sprout**—Tender green shoots, something between Cauliflower and Asparagus in flavour, are ready for picking four months after planting and continue to bear for some weeks.

## BRUSSELS SPROUTS.

*Sow November to January.*

Particularly suited to growing in districts where there are heavy frosts and the Winter is fairly long.

**Yates' Champion**—Many tests have proved this variety the best for Australian conditions and for the home garden.

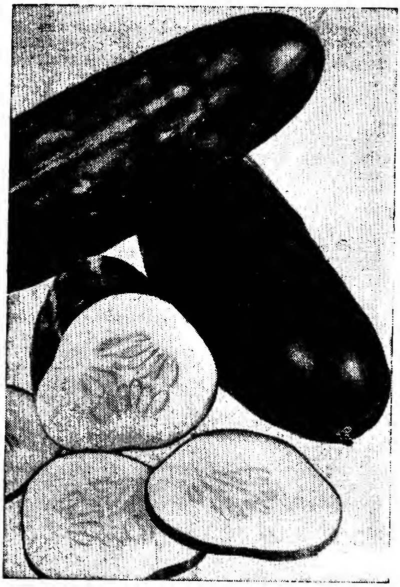
## CABBAGE.

*Sow December to August.*

**Hybrid Cabbage—Yates' Jubilee**—A true first generation Hybrid similar in appearance to Select Succession, but attaining much greater size and maturing up to 3 weeks earlier.

**Yates' First Early Improved**—The most widely grown home-garden Cabbage. The conical-shaped heads are an ideal size for a family of up to five people and cook to perfection. They are ready for use in 2½ months after planting.

**Yates' Select Succession**—Easily recognised by the large, well-folded heads flat across the top, maturing in about four months.



Cucumber—Early Fortune.

**CABBAGE** (continued)—

**Yates' Earliball (Golden Acre)** — Solid, rounded heads of medium size and often ready for cutting 2½ months after planting. Ideal for close planting.

**Yates' Early Drumhead**—Flat, deep heads and favoured as a large Maincrop Cabbage for cool districts. Ready in four months.

**Yates' Mammoth Drumhead**—For cool districts only. A large Cabbage sown in the Autumn for Spring crops.

**Yates' Vanguard**—Hearts well under warm conditions and frequently chosen for a late Spring or early Summer Cabbage, maturing in 2½ to 3 months.

**Allhead**—A medium-size Cabbage, compact heads flattened on top. Matures a little earlier than Succession.

**Copenhagen Market**—A fine early Cabbage; solid, compact round heads.

**Early Jersey Wakefield**—Conical heads of good flavour, and very early.

**Enfield Market**—Large, pointed heads, valuable for cool climates and spring hearting.

**Enkhuizen Glory**—Medium sized, solid, round heads, ready in about 3-3½ months.

**Henderson's Succession**—Similar to Yates' Select Succession—maturing a few days earlier.

**Prize Red**—Mostly grown in cool climates and is used for pickling. Dark red foliage.

**Savoy Drumhead**—Another variety for the cool districts, requiring heavy frost for proper maturity. Remarkably tender and tasty. Foliage blistered or crumpled.

**St. John's Day Select Improved** — Still popular in some warm districts because of its sure heading; dark green leaves.

**Sugarloaf**—Larger and little later than Yates' First Early.

## CHINESE or CELERY CABBAGE.

*Sow Autumn and late Spring.*

**See Page 52.**

**Chihli (Pe-Tsai)**—A tall early variety, maturing in about 12 weeks from the time of planting out seedlings. Foliage is very crisp and attractive light green colour.

**Wong Bok**—Deep green foliage and compact heads. A little later maturing than Pe-Tsai and dwarf habit.

## CAPE GOOSEBERRY.

*Sow August to November.*

**Common Small Fruited**—Pleasantly flavoured fruit are produced in great quantities.

**Golden Nugget**—This variety is mainly used for making jams and preserves, but, for eating raw, the Common Small Fruited will be preferred.

## CAPSICUM.

(Pepper).

*Sow September to November.*

**Sweet Mixed**—A popular mixture with home gardeners, containing the best of the sweet-fleshed types.

**Californian Wonder**—One of the best sweet varieties; attractive fruit and thick flesh.

**Ruby King** — Large, mild fruits up to 5 inches in length and ½ inch thick.

**Long Red Cayenne**—A hot variety; long thin fruits.

## CARROT.

*Sow August to March.*

The shorter varieties are best for shallow soils. Carrots are much sweeter and more tender when half grown.

**Chantenay Red Cored**—Large, stumpy roots, thick at the shoulder with good red core.

**Early Horn** — Valuable for shallow soils, very early and giving short, stumpy roots.

**Manchester Table**—Half-long, cylindrical in shape and stump rooted. Early maturing and easily pulled. An excellent home garden sort. Ideal for grating and salads.

**Yates' Long Intermediate (St. Valery)**—A Maincrop Carrot greatly in demand where size and quality are desirable, particularly for exhibition. Roots of good colour are 8 to 9 inches long and tapered at point.

**Osborne Park Champion**—A good variety for late Autumn growing and a very heavy yielder. However, roots have not the eating qualities of such varieties as Manchester Table and Chantenay.

**Oxheart**—Short, thick-set stump roots with fairly prominent core. Should be used half grown.

**Yates' Topweight**—Produces large roots 6-8 inches long very early and does exceptionally well under most conditions. Top growth is attractive dark green and vigorous. Resists pests and Carrot virus better than other varieties.

## CAULIFLOWER.

*When to Grow—see page 54.*

**Yates' Phenomenal 12 Weeks**—A remarkably early Cauliflower, has produced "flowers" within 11 weeks of planting out. Although not large, they have good colour and grain.

**Yates' Phenomenal Early**—Close grained "flowers" of good size and splendid colour, ready in about four months after planting.

**Yates' Phenomenal 5 Months**—Ready about a month later than Phenomenal Early and slightly larger. Semi self-protecting and almost perfect white hearts.

**Yates' Phenomenal Maincrop** — The standard Maincrop variety. Matures in about six months and produces large, finely-textured "flowers" that are fully protected.

**Derwent Giant**—A very fine Cauliflower, even larger than Maincrop and maturing a little later. Can be grown in any district where other Cauliflowers are successful, and is a good exhibition variety.

**Early Green Glazed**—Finds favour in some dry, inland districts apparently because the glossy green foliage shows some resistance to pests.

**Hawkesbury Solid White**—A fine variety for the home garden—matures in about 4½ months. It is remarkably even when heading and produces solid white hearts.

**Yates' Metropole**—Large solid heads with white curd. A favourite in cool districts where it is sown in Summer for Spring crops. Matures in about 7½ months.

**Nugget**—A 4½-month Cauliflower; mainly used by commercial growers in the Sydney area.

## CELERY.

*Sow August to December*

**Golden Self Blanching**—Rich golden coloured stalks that do not require artificial blanching, ideal for the table or for cooking.

**Solid White (Giant Pascal)** — Matures a little later than most but is noted for its large thick white stalks.

**White Plume**—An easily grown semi-dwarf type, the inner stalks of which are self blanching.

**South Australian White** — An extremely vigorous variety with somewhat coarser stalks than others; mainly used for market crops.

## CRESS (and MUSTARD).

*Sow all Seasons.*

A great deal more of these salad greens could well be grown by home gardeners, for they provide a tasty addition to Summer salads and the young leaves are ready for picking in about 4 weeks.

## CUCUMBER.

*Sow August to December.*

**Yates' Crystal Apple**—White-skinned, large apple-shaped fruit; delicate flavour and profitable cropper.

CUCUMBER (continued)—

**Apple Shaped**—Similar to the previous variety and, although fruits are smaller, they are produced in even greater abundance.

**Long Green**—Among the most favoured of the long green varieties. Very prolific and hardy.

**Early Fortune**—Long tapering fruits maturing earlier than the above and well worth a trial.

**Improved White Spine**—Medium-sized fruit that cuts into large round rings.

**Marketer**—A remarkably fine Cucumber with long, dark green fruits averaging 9-10 inches in length and uniform in size. They are produced in abundance over a long period. Retains colour very well.

**Yates' Mammoth Apple**—Nearly twice the size of the well-known Apple-shaped Cucumber. If the fruit is picked while the skin is still white, the flesh is crisp and well flavoured. Vigorous growth.

**Palmetto (New Mildew Resistant Variety)**—A new variety bred for resistance to Downy Mildew. Fruits are long, dark green skinned, ideal for slicing.

**Short Green**—An early variety; dark green short fruit, blunt ends.

**Heinz Pickling**—Grown as a Gherkin and for this purpose fruits should be harvested when 1½ to 2 inches long. Should be picked often.

**West India Gherkin** — Small, oval-shaped fruits valuable for home pickling.

**African (Horned)**—Quite distinct from other Cucumbers; skin is covered with small horns or spikes and turns a brilliant orange when ripe. Is usually served with sugar, like Passionfruit.

**Richmond Green Apple**—Similar to Crystal Apple in shape. Skin colour green.

## CYPHOMANDRA.

**(Tree Tomato).**

*Sow October and November.*

Fruits are egg-shaped, about the size of a Passionfruit, and with somewhat similar flavour. Plants grow to a size of from 10 to 12 feet and have very large foliage.

## EGG PLANT.

*Sow September to December.*

Almost identical in cultivation to Tomato.

**New York Spineless (Purple)**—Large attractive fruit of a deep purple shade and a great favourite.

**Black Beauty** — A little earlier than the above and even deeper in colour.

## ENDIVE.

*Sow August to March.*

Grow the same as Lettuce and use in the same way for salads.

**Green Curled**—A favourite for its curled bright green leaves. Non-hearting.

**Full Heart Batavian**—Broad, vigorous leaves and now the most popular variety.

## GARLIC.

Used for flavouring—bulbs generally available throughout the year.

## HERBS.

*Sow August to December; Autumn in mild climates.*

Those of which seed is usually available are Thyme, Sage and Marjoram. Mint is not grown from seed but from root division.

## KOHL RABI.

### (TURNIP ROOTED CABBAGE).

*Sow August and again January to March.*

**Early Purple**—Sweet flavour; white flesh.

**Early Green**—Slightly stronger flavour than Early Purple and should be eaten young.

## LEEK.

*Sow August to November and in mild climates March to May.*

**Musselburgh**—The best variety for Australian conditions.

## LETTUCE.

*Plant all Seasons.*

**Yates' Imperial 847**—A good all-seasons' variety, but does best in Spring, early Summer and Autumn. In mild districts can be grown all year round. The hearts are large and solid, and unsurpassed for salads.

**Yates' Iceberg (Champion Cabbage)**—Widely grown during the warmer months of the year. Excellent for the home garden. Sure heading and a very good flavour. Slight red tinge on leaf edge.

**New York (Neapolitan)**—Crisp, large heads and deep green foliage, still very popular in many districts. Does well all seasons.

**Great Lakes**—Now regarded as the most "sure" of all Summer Lettuce; the heads are extremely large and resist the hottest weather without prematurely running to seed. The leaf texture is somewhat coarser than most varieties.

**Mignonette**—A small Lettuce but excellent for warm districts. There are two varieties; one with brown-tinged outer leaves; and the other, Green Mignonette, is completely green. Smoother leaves.

**All-Year-Round**—A "butterhead" type and remarkably tender eating.

**Imperial D**—A medium-sized Lettuce for Winter, withstanding cold conditions better than others.

**Imperial 615**—An attractive variety for maturing during the Autumn and early Spring months.

**Yates' Imperial Triumph**—Quite the best variety for growing during late Autumn, Spring, and early Summer months. In mild climates, such as Tasmania and Victoria, can be grown a little later. The heads are large, solid, with an attractive glossy foliage.

**Webb's Wonderful**—Large heads and deep green foliage.

## MARROW.

*Sow August to December.*

**Bush or Non-Running.**

**Long White Fruited Bush**—One of the most popular varieties—fruits have almost white skin, which turns slightly yellow when matured.

**Long Green Fruited Bush**—The dark green fruit yellows slightly as it ripens; excellent flavour.

**Caserta Bush**—Probably the earliest maturing variety of Marrow listed and a most prolific cropper. Fruits are greyish white with green stripes and are best used before reaching full maturity.

**Custard** (also known as **Golden Bush Squash**)—Rounded, flat fruit with scalloped edge.

**Zucchini**—Very early maturing; dark green fruit of outstanding flavour.

**Running or Vining Varieties.**

**Long Cream Running**—Noted for its heavy crop of long, creamy-coloured fruit.

## MELONS.

### Rock and Water.

### WATER MELON.

*Sow August to December.*

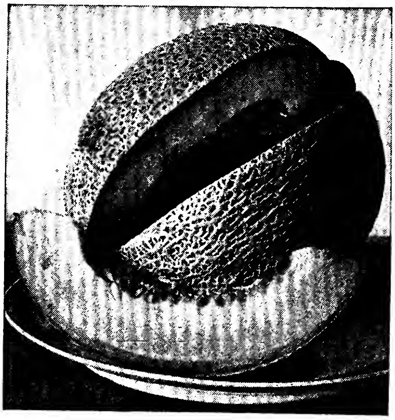
**Early Yates'**—A rounded melon that matures up to three weeks earlier than other varieties and, in some districts, is often ready for picking at Christmas. The fruits are medium size with deep red flesh and thin rind.

**Kleckley Sweets**—Crimson flesh with a sweet, distinctive flavour. Long, deep green fruit.

**Yates' Market Wonder**—A much improved selection of Kleckley Sweets. Large, cylindrical melons of good flavour.

**Sugarstick**—Regarded as one of the sweetest melons and has red, sugary flesh.

**Florida Favourite**—Long, medium-sized fruit of good flavour.



**Rock Melon—Hales' Best.**

### WATER MELON (Continued)—

**Tom Watson**—Although often grown in the home garden, it is more widely grown for market because it carries so well.

**Klondyke Special**—A true home garden melon. The bright red flesh has a distinctive flavour and it is probably the sweetest and juiciest of all. Very thin rind.

**Blacklee**—An oblong melon with very dark green skin and sweet red flesh. It has been especially bred for resistance to Water Melon Wilt.

**Cannon Ball**—A late maturing variety that can be stored for short periods. Rather small, well flavoured fruit.

**Cuban Queen** — One of the largest round melons grown and a favourite for exhibition.

**Golden Honey (Champagne)**—A most delicious eating yellow-fleshed variety.

**Hawkesbury Wilt Resistant**—Similar to Sugarstick and is resistant to wilt, which is prevalent in some districts.

**Ice Cream (White Seeded)**—Oblong fruits with scarlet flesh.

### ROCK MELON.

*Sow September to December.*

**Hales' Best (Mildew Resistant)**—Now easily the most popular Rock Melon. The deliciously flavoured salmon flesh is covered with an attractive netted skin.

**Rocky Ford**—Widely grown because of its earliness; delightfully flavoured green flesh. Fruit fairly small.

**Yates' Surprise**—Underneath the grey-green skin there is thick salmon pink flesh; carries well.

**Hackensack Early**—A good-size melon considering it is so quick maturing. Round fruit with green flesh of fair flavour.

**Californian Cream**—Smooth, yellow rind and appetising pink flesh with aromatic flavour: late maturing and suitable for limited storing.

**Cobra (Indian Cream)**—Not a true Rock Melon but its creamy-yellow flesh can be used as a foundation for fruit salad.

**Improved Yellow Cantaloupe**—A large, deeply ribbed Melon with a yellowish skin and salmon coloured flesh.

**Honey Dew (Winter Keeping)**—Richly flavoured emerald green flesh; very sweet and juicy. White smooth skin.

### PRESERVING MELONS.

These are also members of the Melon family.

## MUSHROOMS.

**Mushroom Spawn**—Available in test tube form—each tube will spawn an area of about 15 sq. ft.—See pages 62-63 for Cultural Instructions.

## MUSTARD GREENS.

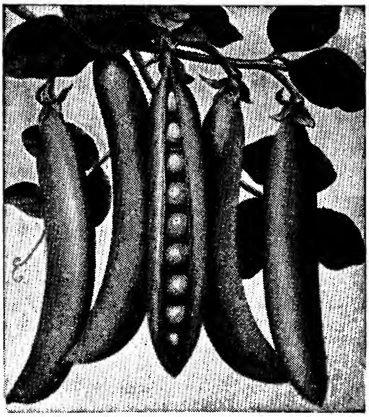
(See CRESS—page 233).

## OKRA (or GUMBO).

*Sow September to December.*

The principal use of Okra is in soups and stews in which the seed pods are cooked.

**Long Green**—The long seed pods that form at the leaf joints should be gathered while young and tender.



Peas—Greenfeast.

## ONIONS.

*Sow early varieties February to May; main crop March to July.*

### WHITE ONIONS.

**Early Barletta**—One of the earliest of all. Has mild and delicate flavour and thick, flattened shape.

**Yates' White Rocket**—The earliest onion grown, flat shape, mild flavour. Excellent for salads or cooking. Pull just before the necks break over.

**Yates' White Imperial Spanish**—A mid-season Onion, producing large heavy bulbs suitable for storing. Does best in cooler districts.

**Hunter River Early White**—Matures a little later than Early Barletta and is excellent for cooking. Globe shaped.

**Spring or Salad**—Used for flavouring stews or for eating raw. They are pulled when the stalks have thickened slightly at the base.

**Early Flat White**—An extremely early Onion which in temperate climates can be grown most of the year. Bulbs are silvery white and flat.

**White Pearl**—A late maturing globe Onion and a fairly good keeper.

### BROWN ONIONS.

**Brown Spanish Yates' Select Derwent Long Keeping**—For cooler districts it is probably the most widely grown Onion of all. A tough leathery skin enables it to be kept for many months. A fine late Onion.

**Odourless**—A large mild flavoured variety greatly valued for both cooking and using raw. Not a storing Onion.

**Yates' Hunter River Early Brown**—Although very early, grows a good-sized globe-shaped bulb. Suitable for warm districts.

**Prizetaker**—A very large Onion and a frequent prizewinner. The straw coloured skin covers creamy flesh of mild flavour.

**Yates' Earligold**—Extremely even in maturing and very early. Bulbs are flat shaped, with straw coloured skin; flesh is very mild and juicy. Particularly recommended for warm districts but should not be sown before end of March.

BROWN ONIONS (continued)—

**Early Golden Globe**—A mid-season globe-shaped variety.

**Early Grano**—A good home garden variety for an early to mid-season crop; mild flavour and good eating.

**Potato Onions**—Bulbs available February, March. See page 65.

**Tree Onions**—Bulbs available February, March. See page 65.

## PARSLEY.

*Sow August to March.*

**Extra Curled**—Rich green, curled leaves produced in abundance.

## PARSNIP.

*Sow August to February*

**Hollow Crown**—For Australian conditions this Parsnip stands out so much from others that it is now grown almost exclusively.

## PASSION FRUIT.—See Page 253.

## PEAS.

*Sow January to September.*

**Greenfeast**—Extraordinarily heavy crops of well-filled pods; the most widely grown variety.

**Yates' Earlicrop**—Sown at the same time as Greenfeast will produce first-class pods some weeks earlier. The sturdy dwarf plants make it an excellent choice for the home garden.

**Melbourne Market**—A very early maturing variety maturing 3–4 weeks before Greenfeast. Very popular with Melbourne growers.

**Stratagem**—Broad, flat pods carrying about eight very large peas. Often grown as a Winter crop in temperate areas; tall growing.

**Yorkshire Hero**—Small, sweetly flavoured pods and although very prolific is now being superseded by Greenfeast and Earlicrop.

**Richard Seddon**—Dwarf plants carry long, straight pods with Peas of excellent flavour.

**English Wonder**—A dwarf growing variety that is sometimes planted to follow Earlicrop.

**Utility (Little Marvel)**—Grown mainly in the coolest districts; blunt ended pods are borne in pairs and are well filled.

**Witham Wonder**—Another very early variety; heavy crops of large pods.

**Telephone**—So named because of its climbing habit; plants often reach 4·5 feet. Enormous pods are provided over a long period.

## POP CORN—See SWEET CORN.

## POTATOES.

The planting of Potatoes may not be warranted in very small gardens because other vegetables would be likely to give much better returns for the space available. However, any spare ground not likely to be used between August and December should be given over to this crop, which is also suitable for the first crop in new ground.

## PUMPKIN.

*Sow August to December.*

**Yates' Queensland Blue** — Noted for its uniform fruits of good size and deep orange, dry flesh; the best keeping Pumpkin.

PUMPKIN (continued)—

**Yates' Triamble**—A large Pumpkin of unusual three-cornered shape. Fine flavour and excellent for storing.

**Yates' Select Crown (Sydney type)**—The orange flesh is thick, dry and of good flavour; hard, grey skin and a good keeper.

**Gramma (or Trombone)**—Largely used for making pies, preserves and jams. Deep yellow, slightly sweet flesh.

**Butter Pumpkin**—Quite the earliest maturing Pumpkin grown. Skin is a pinkish colour; flesh deep orange and of fine flavour. Prolific cropper and well worth trying.

**Turk's Cap (High Crown type)** — Quick maturing and therefore grown in districts where Summers are short; not a good keeping variety.

## RADISH.

*Sow all Seasons.*

**Long Scarlet**—Attractive, tapering roots of mild flavour and with scarlet skin.

**Long White Icicle** — Crystal-white roots, ideal for the table.

**French Breakfast**—Bright red, oval-shaped roots, with a white tip; mild and tasty.

**Mixed Turnip**—A mixture of the red and white turnip-shaped varieties.

## RHUBARB.

*Sow seed from June to November; plant roots March to December.*

**Sydney Crimson (Topp's Winter)**—Will usually continue to bear during the cool weather when other varieties are dormant.

**Victoria Giant**—Magnificent stalks produced mainly during the warmer months. Not recommended for hot climates. No roots available—only seed.

## ROSELLA.

*Sow September to November.*

Rosella, which belongs to the Hibiscus family forms an attractive bushy plant of a distinct reddish-purple and green colour. The yellow flowers form along the stem. The celebrated Rosella Jam is made from the fleshy calyx of the flowers.

A very popular plant in sub-tropical districts and grown for its fruit, which is used for jams and preserves.

## SAGE—See HERBS, page 234.

## SALSIFY.

### (VEGETABLE OYSTER).

*Sow April to January.*

When full grown the roots should be boiled till tender and served with melted butter; they have a pronounced oyster flavour.

**Mammoth Sandwich Island** — Long white tapering roots.

## SHALLOTS.

Bulbs available February, March. See page 71.

## SPINACH.

*Sow from February to September.*

This true dwarf-growing type must not be confused with Silver Beet.

**Round Seeded**—Bright crimped leaves produced in large quantities.

**Prickly Seeded**—Large leaves and a very hardy Winter grower.

**SPINACH (continued)—**

**New Zealand**—A perennial plant that grows with very little attention and yet provides valuable greens for many months of the year.

## SQUASH.

*Sow September to December.*

**LONG KEEPING (WINTER) VARIETIES.**

**Green Warted Hubbard**—Large fruits often 14-15 lbs. in weight have a heavily warted, dark green skin and thick yellow flesh. Delicious flavour and good keepers.

**Table Queen (Acorn)**—Small pear-shaped fruit, ideal for serving in halves and for baking; especially recommended.

**Table Gem**—A bush form of Table Queen and one which is rapidly becoming popular, especially where space is limited.

**Golden Hubbard**—Rich golden skin and well flavoured flesh. Fruits are not large but very early.

**Banana**—Long fruit, often 15 inches in circumference, with dry flesh of appetising flavour. Highly recommended. Cooks and eats similar to Pumpkin.

### SUMMER SQUASH.

These are non-running varieties and fruits should be used shortly after picking.

**Early White Bush** — Medium size, round fruit with scalloped edge. Most prolific and usually ready for use within 2½ months of sowing.

**Early Golden Bush**—Similar to Early White but the skin is deep yellow.

## SWEET CORN.

*Sow September to December.*

**Golden Bantam**—Richly flavoured cobs with broad grains which, if picked young, cook to perfection.

**Golden Cross Bantam**—A hybrid form of the Golden Bantam with larger and more refined cobs per plant.

**Pop Corn**—The pearly white grains are splendid for roasting, and make delicious Pop Corn.

## THYME—See HERBS, page 234.

## TURNIP.

*Sow January to April and again in August.*

**White Stone (Snowball)**—Pure white rounded roots of excellent quality.

**Purple Top White Globe**—A large Turnip, making round roots with purple crowns.

**Yates' Flat Express**—Matures very quickly and produces flattened roots of pure white flesh.

**Purple Top Munich (or Milan)**—Another very early variety. Flat, white roots with reddish purple top.

**Yates' Long White**—A quick growing variety, often used in warm districts; long, cylindrical roots.

### SWEDE TURNIP.

*Sow December to March.*

**Champion Purple Top**—A specially selected strain.

Where growers prefer some of the older proved varieties we still have available:—

**Marglobe**—Large, smooth, round fruit shaded by ample foliage.

**Burwood Prize**—Good late variety bearing smooth medium to large fruit of good colour, heavy "Potato" foliage.

## TOMATO.

*Sow July to December.*

**THE FOLLOWING VARIETIES ARE QUITE OUTSTANDING FOR HOME GARDEN OR COMMERCIAL USE.**

**GROSSE LISSE**—For flavour and all-round quality this is easily No. 1 choice. Large globe shaped smooth fruit of deep red colour and superb flavour are produced in abundance over a long period. Successfully grown in almost every part of the Commonwealth. In our opinion this is the finest Tomato ever offered in Australia.

**RED CLOUD** — A very early variety coming to maturity about the same time as Earliana or just a day or two earlier. Tests show it will out-yield Earliana, Break O'Day or other similar varieties. Produces a heavy crop of medium to large size, smooth deep red fruit of fine flavour. Vine habit is medium tall and ideal for growing on stakes.

**BREAK O' DAY**—Still very popular in many districts because of its dependable cropping ability under a wide range of conditions. It is renowned for its heavy crop of deep round solid fruit.

**SIOUX**—One of the best of the new early maturing varieties, medium large, flat shaped fruit, cream green in colour when young, ripening to a good rich red. Shows resistance to sunburn when young. Bushes dwarf in habit. Best suitable for growing unstaked.

**Devlin's Choice**—One of the best late maturing varieties we have, vigorous; bears heavy crops of large flesh fruit.

**Bonny Best (Chalk's Early Jewel)**—Medium sized smooth solid fruit.

**Beefsteak (Crimson Cushion)**—Produces a heavy crop of large good coloured fleshy fruit. A good show bench type.

**Ponderosa**—Favoured by some growers because of its large-sized fruit.

**Earliana**—One of the earliest of the larger Tomatoes, but now being superseded by Red Cloud.

**Earliwinner**—Similar to Earliana.

**June Pink (Pink Queen)**—A pink-skinned variety similar to Earliana in appearance.

The following varieties are recommended for early crops in frost-free areas and in Southern States—these varieties do not require staking:—

**Rouge de Marmande**—Noted for its ability to set fruit under fairly cool conditions—heavy cropper.

**South Australian Dwarf Red**—Very hardy with ribbed or crinkly fruit.

**Tatura Dwarf Globe**—Smooth globe-shaped fruit of medium size.

**Australian Large Red**—Slightly ribbed fruit, fairly tall bush suitable for staking.

# FLOWERS

**In compiling this list of well-known (and some lesser-known) flowering plants, we have kept in mind, as far as possible, the needs of the home gardener as well as the keen exhibitor, and we feel confident that all will enjoy looking through these pages for the flowers they intend to grow.**

**Apart from continuous germination tests of all seeds, we are constantly making check-trials and inspecting seed crops so that gardeners may choose. and sow, their seed confident that they have taken the first step towards success in gardening.**

## ACROCLINIUM.

(See Everlasting Daisy).

## AGERATUM (Floss Flower).

*Sow all Seasons.*

**Imperial Tall Blue**—Bright lavender blue; a popular florists' type.

**Imperial Dwarf Blue**—Similar in colour to the Tall Blue, but plants grow only 9 inches high and are very useful for edging and rockery display.

## ALYSSUM (Sweet Alice).

*Sow all Seasons.*

### ANNUAL VARIETIES.

**Lilac Queen**—Grows about 6 inches high. Plants are covered with lilac flowers.

**Carpet of Snow (Procumbens)**—Pure white flowers compactly massed, plants grow about 3 inches high.

**Violet Queen**—A truly beautiful Alyssum, deep violet, fragrant masses of bloom appear continuously throughout all but the coldest months, grows 5 inches high.

### PERENNIAL VARIETY.

Much taller growing and later flowering than the annual varieties. With careful attention the plants will last two or three years.

**Saxatile**—Deep yellow clusters of flowers on stems 12 inches high.

## AMARANTHUS.

*Sow September to December.*

**Mixed Hybrids**—A wide range of brightly-coloured leaves, and plants grow up to 5 feet high.

## ANCHUSA.

## (Cape Forget-Me-Not).

*Sow January to April.*

**Bluebird**—Vivid deep blue flowers on stems about 18 inches long. A very hardy annual. In climates similar to Sydney they may be cut back for a second flowering.

## ANEMONE (Windflower).

*Sow seed January to April*
*Plant bulbs February to July.*

Few flowers rival Anemones for a vivid splash of colour in the Spring.

Reds, pinks and blues in separate colours are available in bulbs only. Yates' Bulb List describes all the colours.

**St. Brigid, Yates' Prize Strain**—A bright mixture of semi-double and double flowers of red, pink, lilac and purple shades, many flowers having contrasting black rings or centres.

## ANTIRRHINUM.

(See Snapdragon).

## AQUILEGIA (Columbine).

*Sow January to April.*

**A hardy perennial for planting in clumps or as a background display in wide borders.**

AQUILEGIA (continued)—

Cut back to ground level after flowering to induce a second growth.

**Yates' Derwent Long Spurred**—A varied mixture noted for its large, long-spurred flowers, and glorious range of colour.

## ARCTOTIS GRANDIS.

## (White African Daisy).

*Sow September to February.*

Pearly white flowers, the reverse side of which is pale lilac, and the centre a blue disc ringed with a narrow golden band. Silvery foliage. Height, 3 feet.

## ARGENTINE PERENNIAL PEA.

(See Perennial Pea).

## ASTER.

*Sow August to December.*

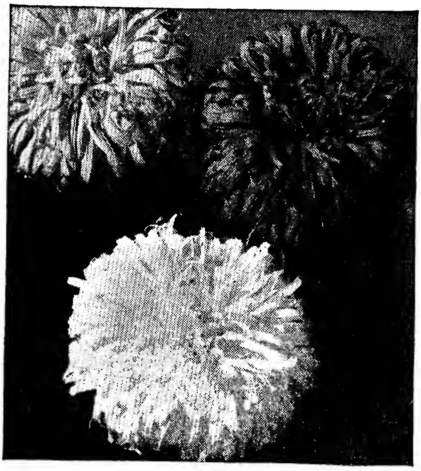
### CREGO (Wilt Resistant).

The earliest Aster of all; the vigorous plants produce an abundance of flowers (up to 4 inches across) on long stems. The informal curling and twisting of the petals add to their beauty.

**Yates' Re-Selected Giant Crego Mixed**—A well-proportioned blend of the finest and loveliest colours.

Separate Colours.

The following are available separately:—White, shell pink, deep rose, crimson, azure blue, purple.



Aster—Giant Crego.

**ASTER (continued)—**

### AMERICAN BEAUTY (Wilt Resistant).

A hardy Aster, bearing large decorative flowers on long stems. The petals curve in over the flower not unlike a Chrysanthemum. Blooms about three weeks later than Crego and has great merit for late sowings.

**American Beauty Mixed**—This has always been a popular mixture because of the grand collection of bright colours.

### Separate Colours.

The following are available separately:—Carmine, rose, purple.

### CALIFORNIAN GIANTS.

For really large flowers these stand alone, in appearance like the Giant Crego with curled and interlacing petals. The plants are tall and vigorous, but they do not flower until much later than the Crego and American Beauty types. They are not as wilt resistant, so choose good land for them if possible.

**Californian Giants Mixed**—All the favourite shades of reds, pinks, purples and whites.

### HEART OF FRANCE (Wilt Resistant).

An old favourite and still the best red Aster; medium-sized flowers are of the purest ruby-red and deepen as they mature.

## AUBRETIA GRAECA.

*Sow February to May.*

A hardy perennial trailing plant for rockery or edging culture. Light blue flowers.

## BALSAM.

*Sow September to January.*

**Yates' Superb Double Mixed**—Rich shades and delicate tints are blended into this mixture. Large camellia and rose-like flowers borne right on the main stems.

## BEGONIA (Bedding Begonia).

(Fibrous Rooted).

*Sow July to November*

In addition to bearing bright rose-pink and scarlet flowers, plants have shiny, coloured foliage which is most attractive.

**Semperflorens Mixed**—A mixture of rose and red shades, with a sprinkling of white. Height, 9-12 inches.

## BEGONIA (Tuberous Rooted).

*Sow June to August.*

**Double Finest Exhibition Strain** (mixed colours)—Selected for true form and a choice range of colours.

## BELLIS PERENNIS.
## (Double Daisy).

*Sow February to May.*

**Yates' Prize Strain**—Red, rose, pink and white are the predominant shades. Height, 6 inches.

## "BIG GYP."
## (Saponaria Vaccaria).

*Sow all Seasons.*

A flower similar to Gypsophila, but the florets are much larger and more prolific. It is easily grown, lasts well after cutting. The colour is a true rose.

## BLUE LACE FLOWER.
## (Didiscus Coeruleus).

*Sow Autumn and Spring.*

Although sowings are usually made in the Spring, in mild climates it is also possible to sow in early Autumn.

Umbrella-like flowers in a rare shade of clear, light blue ,sometimes described as "heavenly blue." Plants grow about 20 inches high and are excellent for indoor decoration.

## BORONIA MEGASTIGMA.

*Sow August and September.*

The well-known sweet-scented brown Boronia. One of Australia's most widely grown native flowers. Height, 3 feet.

## BRACHYCOME.

(See Swan River Daisy).

## BROWALLIA ELATA.

*Sow March to May.*

A very showy Spring and Summer flowering annual. The compact plants, 15-18 inches high, produce an abundance of semi-star-shaped flowers in a rare shade of intense blue. Effective for both garden display and indoor decoration.

## CALCEOLARIA.

*Sow during Spring and Autumn in cool, moist conditions.*

They make an exceptionally fine display in glass houses, but are not suitable for outdoor cultivation.

**Yates' Superb Mixed**—Yellow is the main colour, but many flowers are beautifully marked and spotted with mahogany and red tonings.

## CALENDULA.
## (English Pot Marigold).

*Sow January to July.*

**Goldmine Mixture**—Rich buttercup, orange and pastel shades on stems up to 18 inches long; ideal for the home garden.

**Golden Delight**—Rich buttercup.

**Orange Sunshine**—Clear orange.

**Pacific Beauty**—This mixture has the soft, pastel shades, apricot, light yellow, etc.

**Gives a most attractive display.**

CALENDULA (continued)—

**Campfire Improved**—Large, deep, orange flowers.

**Lemon King**—Rich lemon with some variations.

**Orange King**—A rich, deep orange shade, and flowers are fully double.

## CALIFORNIAN POPPY. (Eschscholtzia).

*Sow September to December.*

The State flower of California, U.S.A., where it is held in very high regard. From every opening in the lacy blue-green foliage, the long tapering flowers open into the most vivid colours. An excellent subject for hot positions.

**Mixed Hybrids**—Orange, scarlet, mauve and rose comprise the fine colour scheme of this mixture.

## CALLIOPSIS (Coreopsis).

### ANNUAL VARIETIES.

*Sow August to November.*

**Drummondii**—The well-known Calliopsis with the crimson centre. Height, 2 feet.

**Bicolor (Tinctoria) Mixed**—Shades of yellow, brown and mahogany.

### PERENNIAL VARIETY.

*Sow March to June.*

**Lanceolata Grandiflora**—Rich, golden yellow flowers on long, wiry stems suitable for cutting. Height, 2 feet.

## CANDYTUFT.

*Sow February to July.*

There are two distinct types.

### UMBELLATA TYPE.

Each flower is made up of dainty florets, radiating umbrella-fashion from the centre stem.

**Yates' Giant Flowered Hybrids** — Blended from the separate colours to give a bright assortment of deep rose, crimson, lavender and light shades.

**Rose Cardinal**—The rich deep rose grown by commercial flower growers.

### CORONARIA TYPE.

**Yates' Hyacinth Flowered (Empress)** — Pure white flower heads, not unlike a large Hyacinth. Height, 12 inches.

## CANNA.

*Sow August to October.*

A colourful and hardy perennial for growing where large areas, difficult to care for, are to be filled.

**Giant Hybrids**—Large flowering, a variety of colours, including pink, red and tiger tonings.

## CANTERBURY BELLS.

### ANNUAL TYPE.

*Sow February to June.*

**Annual Choice Mixed**—Shades of blue, rose, pink and white have been blended into this gay mixture.

### BIENNIAL TYPE.

*Sow February to June.*

A great favourite with cool climate gardeners.

**Calycanthema (Cup and Saucer) Mixed**—Derives its name from the charming effect of the large, round flower cups resting within a saucer-shaped petal. Pink, rose and blue colours.

**Single Mixed**—Hardy and free flowering.

**Double Mixed**—Large, full-petalled flowers.

## CAPSICUM CELESTIAL.

(See Ornamental Chili).

## CARNATION.

*Sow all Seasons.*

**Yates' Giant Bedding Mixed**—Apart from being an excellent subject for bedding, this variety will provide a wealth of fully double, clove-scented blooms for indoor decoration. Stems are long and wiry.

**Chabaud's Early**—Large fully double sweet scented flowers in a wide range of colours.

**Perpetual Flowering, Double Mixed**—Quite different from the bedding type of Carnation in that the seed is saved from named Carnations, previously hand-fertilised. In great demand by keen gardeners who obtain flowers equal to named varieties. There is a varied assortment of colours, and a high proportion of double flowers.

## CELOSIA.

*Sow September to December.*

**Thompsoni (Feathered Cockscomb) Mixed**—Plants grow about 18 inches high and display a wealth of bright feathery flowers in such colours as crimson, scarlet, and gold.

**Flame of Fire (Pyramidalis)** — Something entirely different in Celosias, in that the plants are made up of a fiery red "cone" surrounded by a base of smaller "cones."

## CENTAUREA CYANUS.

(See Cornflower).

## CENTAUREA IMPERIALIS.

(See Sweet Sultan).

## CHEIRANTHUS ALLIONI. (Siberian Wallflower).

*Sow February to May*

A colourful flower in great demand for rockery culture as well as general garden display. Fragrant flowers of bright glowing orange, in striking contrast to the dark green foliage. Height, 12 inches.

## CHRISTMAS BUSH. (Ceratopetalum Gummiferum).

*Sow January to March.*

The well-known and popular Christmas Bush. Our seed is gathered from the finest, brilliantly-coloured trees, and, being expertly harvested, is noted for its high germination.

## CHRYSANTHEMUM.

### PERENNIAL TYPE.

*Sow August to October.*

**Yates' Early Flowering Indicum**—Belongs to the same family as the Japanese Chrysanthemum and is widely grown for its abundance of single, semi-double and

**CHRYSANTHEMUM** (continued)—
double flowers. An extensive colour range of copper, rose, yellow and cream shades. Height, 3½ feet.

**Chrysanthemum Plants available September to November. Ask for list of named varieties.**

### ANNUAL TYPE.

*Sow February to July.*

**Chrysanthemum Tricolour** — (See Painted Daisy).

## CHRYSANTHEMUM LEUCANTHEMUM.

**(See Shasta Daisy).**

## CINERARIA.

*Sow January to March.*

A wide, well-grown border of Cineraria is one of the finest rewards of home gardening. For planting in the open, choose a wind-sheltered and semi-shaded border.

Use them, too, for the bush house, and try the gorgeous colours of California Super Giants for pot culture.

**Yates' Large Flowered Branching**—A carefully selected strain with a most extensive assortment of colours, such as pink, many shades of blue, white, etc.

**California Super Giants**—A special dwarf strain, suitable for pot culture, with very large florets and an unusual range of colour.

## CLARKIA.

*Sow February to July*

Autumn sowings will provide a profusion of these dainty flowers during the Winter and early Spring.

**Double Mixed**—Crinkly, rosette-like blossoms in such colours as pink, white and lilac are freely produced along the stems. Most effective for floral decorations. Height, 2 feet.

## CLIANTHUS DAMPIERI.

**(See Sturt's Desert Pea).**

## COCKSCOMB.

*Sow September to December.*

Colourful plants for growing during the Summer months where a bright display is required.

**Good Mixed**—Plants grow up to one foot high with giant heads of bloom in crimson, yellow, salmon and gold.

**Glasgow Prize**—Plants grow only 12 inches high and bear beautifully-formed crimson heads of flowers.

## COLEUS.

*Sow September to December.*

In districts similar to and warmer than Sydney, they may be grown outdoors, favouring semi-shaded positions.

**Yates' Special Exhibition**—An exclusive strain selected from the best of the show varieties, and includes fringed and plain types in exquisite colour variations.

## CONVOLVULUS.

*Sow September to December.*

**Minor Mixed (Dwarf Morning Glory)**—Invaluable for a hardy Summer-growing plant in places where other plants may be almost impossible to grow. Height, 12 inches.

(See page 253 for other varieties.)

## CORNFLOWER.
## (Centaurea Cyanus).

*Sow February to July.*

Cornflowers will always be a favourite for their old-world charm, and although they favour cool climates, they have been grown with moderate success in districts as warm as Sydney. Height, 3 feet.

**Double Mixed**—Blue, rose, white, lavender and maroon.

**Blue King**—The true cornflower blue. Height, 3 feet.

## COSMOS.

*Sow September to January.*

**Mammoth Single Mixed**—Large flowers on long slender stems. Crimson and rose are the main colours and there is just a sprinkling of white.

**Sensation Radiance**—Graceful annual plants 3 feet high carrying masses of flowers 4 to 6 inches across. Early flowering coming into bloom weeks after sowing. Colour, deep rose with a rich crimson central zone and yellow eye. Excellent for cutting.

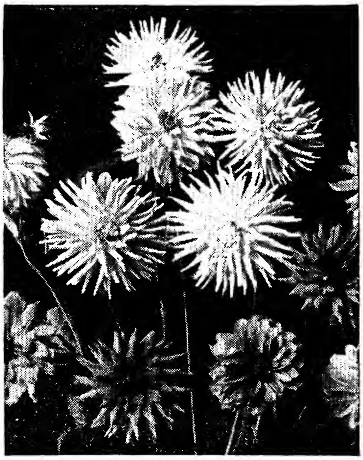
**Orange Flare**—Bright orange flowers which although not quite so large as the above variety appear much earlier in the season.

## CUPHEA FIREFLY.

*Sow August to October.*

Compact plants growing only 10 inches high are covered with cerise-red flowers during the Summer months; ideal for rockeries and border edging.

**Cineraria.**



Dahlia—Charm Mixed.

## CYCLAMEN.

*Sow seed March to September.*
*Plant bulbs December to April.*

**Persicum Giganteum Mixed** — Carefully selected from a very fine strain of Cyclamen.

## CYNOGLOSSUM.
## (Chinese Forget-Me-Not).

*Sow February to April.*

A hardy annual not unlike a large Forget-Me-Not. Where bright blue flowers are required this should be kept in mind.

**Amabile Blue**—Large sprays of the brighest blue flowers. Height, 18 inches.

## DAFFODIL.

*Plant February to May.*

See page 149.

## DAHLIA.

*Sow seed and plant tubers September to November.*

These can be grown either from tubers or seed. Named varieties are available only in tubers, a full list of which is issued each Spring. Growing Dahlias from seed has become an absorbing hobby for hundreds of home gardeners. While there may be a few unwanted flowers, the percentage of first class blooms is high.

**Charm Mixed** — The Charm Dahlia has rightly earned pride of place with home gardeners and also commercial growers; is not so tall growing as, for instance, the Decorative type, and displays a first-class flower for indoor decoration. Stems are stiff and slender.

**Double Mixed** (Seed only)—Saved from the best named varieties of Decorative and Cactus Dahlias.

**Double Decorative Mixed**—The popular tall growing large flowered Dahlia.

**Hybrid Cactus Mixed**—A similar flower to the true Cactus Dahlia, except that the petals are a little broader in the centre.

## DELPHINIUM.
## (Perennial Larkspur).

*Sow February to October.*

Whether you choose the "stately Hybrids" or the daintily decorative Butterfly Delphinium, it is essential to know that the seed is saved from selected strains.

**Pacific Giants Mixed**—Magnificent florets, closely packed on long stems. A truly fine Delphinium, and one which lovers of this flower cannot afford to miss. The best variety for exhibition.

**Yates' Perennial Hybrids**—A very select strain of the Tall Delphinium, noted for its large trusses of florets in many and varied shades of blue.

### BUTTERFLY TYPE.
### (Chinese Delphinium).

Most of the varieties in this type grow about 2½ feet high and are among our most dainty flowers.

**Azure Blue**—A delightfully sky-blue shade that looks particularly effective under artificial light.

**Deep Blue (Gentian)** — A most beautiful rich blue shade.

### BELLADONNA TYPE.

Midway between the Tall Hybrids and the Butterfly types, retaining the more tightly spaced flowers of the Tall Hybrids with slightly shorter stems and more compact than the Butterfly type. Many commercial growers are using this type, which we feel sure would be more popular with home gardeners if it were better known.

Belladonna is a light blue and Bellamosum a deep blue.

## DIANTHUS.

*Sow all Seasons.*

The hardy Dianthus could well be more widely grown, as, besides producing an abundance of gay flowers it withstands drought and is adaptable to most soils. Most varieties will bloom for two years, but it is best to make fresh sowings about every twelve months, either in the Spring or Autumn.

**Yates' Double Hybrids** — Large double flowers resembling a Carnation almost cover the plant. Colours range from deep reds and maroons to light shades of pink and cream.

**Yates' Single Hybrids**—Each plant carries a profusion of colourful and dainty blooms, some having deeply serrated petals.

**Chinensis (Indian Pinks)** — Flowers are produced in bunches in various shades of pink, carmine and crimson.

## DIDISCUS.

(See **Blue Lace Flower**).

## DIMORPHOTHECA.

*Sow September to November*

This showy annual is most suited to our warm climate.

**Aurantiaca Hybrida** — The most brilliant colours, including various yellow and orange shades. Height, 18 inches.

## ESCHSCHOLTZIA.

(See Californian Poppy).

## EUPHORBIA.

(See Snow on the Mountain).

## EVERLASTING DAISY.

## (Acroclinium).

*Sow January to May.*

To preserve the natural appearance of the flowers, suspend them head downward for a few hours after picking.

**Large Flowered Double Hybrids**—A varied mixture of apricot, salmon, pink and cerise shades. Height, 2 feet.

## FLANNEL FLOWER.

## (Actinotis Helianthi).

*Sow September to December.*

In its natural surroundings the Flannel Flower thrives in fairly poor soil and does not require heavy watering. Seed is inclined to be difficult to germinate. Should be sown in the Spring.

## FORGET-ME-NOT.

## (Myosotis Alpestris).

*Sow February to April.*

Very attractive plant for edging or window boxes. Height, 12 inches.

**Blue**—A rich blue.

**Mixed Colours**—Blue, pink and white.

## FOXGLOVE (Digitalis).

*Sow February to April.*

A stately plant for wide borders or clump planting. Thrives in cool climates. Height, 4 feet.

**Large Flowered Mixed**—A strain selected for its large florets and variety of colours, overlaid with attractive markings.

## FREESIA.

*Sow seed January to April.*
*Plant bulbs January to July.*

Freesias can be grown from seed or bulbs, and if sown in the Autumn will flower the following Spring.

**Yates' Hybrids**—This strain is a selection from a fine collection of Freesias, and the colours include pink, rose, deep cream, orange, lavender and blue.

**Refracta Alba**—Pure white.

## GAILLARDIA.

*Sow Autumn and Spring.*

### PERENNIAL TYPE.

Few plants bloom so consistently throughout the year and continue to flower under such difficult conditions as will the Gaillardia.

**Grandiflora Mixed**—A large-flowered strain in such colours as pure orange, Indian red and yellow, with intermediate shades.

### ANNUAL TYPE.

The chief advantage of the annual type is that they bloom quickly from the time of sowing, and if seed is sown in early Spring, there will be a generous display of flowers by Xmas.

GAILLARDIA (continued)—

**Lorenziana Choice Mixed**—Richly coloured, ball-shaped flowers, comprised of bright coloured, tightly packed tubular florets. Height, 15 inches.

## GERBERA JAMESONI.

## (African Daisy).

*Sow September to January.*

As Gerbera seed is not a good keeper sow the seed as soon as possible. We take special precautions to ensure that seed supplied is fresh.

**Yates' Giant Hybrids**—A selection of the many fine colours now obtainable in the large flowered, long stemmed strains.

## GEUM.

*Sow January to August.*

May be used for indoor decoration if the flower stems are first burnt at the ends.

**Mrs. Bradshaw**—Brick-red, semi-double flowers, not unlike small Carnations.

**Lady Stratheden**—Bright golden-yellow.

## GLADIOLI.

*Plant bulbs March to December.*
*Sow seed August to April.*

Gladioli bulbs will flower the first season, but when grown from seed will not always flower until the following year. In this case young bulbs are held over the first season and resown for flowering the second year.

**Yates' Giant Hybrids**—A collection of all the popular colours and fine large flowered varieties.

Named varieties are available in bulbs only.

## GLOBE AMARANTH.

## (Gomphrena).

*Sow August to January.*

Like other "Everlastings," these flowers can be hung head downwards, dried and used for indoor decoration when other flowers are scarce.

**Purple**—Numerous, clover-like blossoms are freely produced during the Summer months. Height, 2 feet.

**Mixed Colours**—Predominant shades are purple, flesh-pink, lavender and white. Height, 2 feet.

## GLOXINIA.

*Sow May to September.*

**Yates' Prize Strain**—Gorgeous colourings with mottled markings.

## GODETIA.

*Sow February to August.*

### TALL DOUBLE TYPES.

### (Azalea Flowered Variety).

Long graceful stems up to 3 feet in length are freely studded with the Azalea-like blossoms.

**Double Mixed**—A very selected blend of the most charming colours, such as pink, cherry red, mauve and carmine.

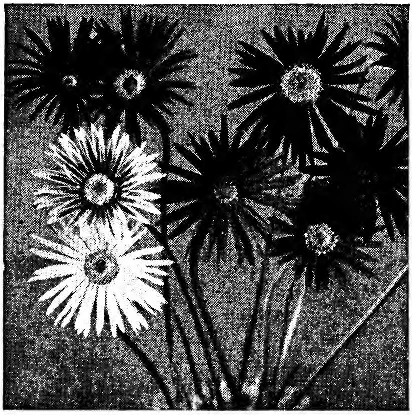
**Cherry Red**—A rich rose red shade, popular as a cut flower.

### SINGLE TYPES.

Height, 20 inches.

**Sybil Sherwood**—Soft salmon-pink, shading to orange.

**Kelvedon Glory**—A vivid salmon orange.



Gerbera—Giant Hybrids.

## GOURDS (Ornamental and Loofah).

(See Climbing Plants).

## GYPSOPHILA (Fairy Grass).

*Sow all Seasons.*

Regular sowings of this easily grown hardy plant will ensure a succession of dainty blooms throughout all but the hottest months. Also most attractive in mixed bowls with other flowers.

**Elegans White (London Market)** — The quick-growing annual variety with masses of small clear white flowers.

### PERENNIAL VARIETY.

**Paniculata**—White florets; grows to perfection in cool climates.

(For "Big Gyp." see Saponaria Vaccaria).

## HELICHRYSUM.

(See Straw Flower).

## HELIOTROPE (Cherry Pie).

*Sow February to May.*

**Mixed** — Hardy, perennial plants growing 2½ to 3½ feet high, with attractive flower heads made up of delicately-perfumed florets in shades of mauve.

## HOLLYHOCK (Althaea).

*Sow February to April.*

The perennial type so well known to cold climate gardeners is not really successful over large areas of Australia, although we still recommend it for Highland areas in the Southern States.

### PERENNIAL TYPE.

**Yates' Derwent Double Mixed**—A brilliant range of colour in large double flowers.

**Single Mixed**—A varied assortment of the best colours.

### ANNUAL TYPE.

**Indian Spring**—Large, semi-double flowers in a delightful rose-pink shade.

## HUNNEMANNIA.

(See Mexican Poppy).

## IPOMOEA.

(See Morning Glory, page 253).

## IPOMOPSIS CORONOPIFOLIA. (Gilia).

*Sow February to May.*

A hardy, decorative plant for the semi-permanent border, producing long spikes of fiery-scarlet blooms, suffused with orange. Can be used with striking effect for indoor floral decorations.

## KOCHIA. (Mock or Summer Cypress).

*Sow August to December.*

**Tricophylla (Childsii Strain)** — Attractive annual foliage plants growing in similar fashion to a small Cypress tree. For the first few months the feathery foliage is bright green, but in the Autumn changes to brick-red. Height, 30 inches.

## LARKSPUR. (Annual Delphinium).

*Sow March to July.*

Easily grown, excellent both for cut flowers and a garden display in the Spring months.

**Yates' Rainbow Mixture**—A balanced range of all the choicest colours; includes the fine large flowered Imperial varieties introduced recently. The colours range from carmine, rich rose to soft delicate pinks and white, blended with blue shades ranging from light sky-blue to rich purple.

### GIANT IMPERIAL.

In this Larkspur the stems branch from the main centre of the plant near the base. They are approximately 3 feet high, compact and very sturdy.

**Giant Imperial Mixed**—A beautifully proportioned mixture of the loveliest colours.

All of the many varieties which go to make up our mixtures are offered separately, but for the home gardener the best of these are Carmine King, Deep Rose, Pink King, Lilac Spire, Blue Bell (mid blue), and Blue Spire (dark blue).

## LAVENDER SHOWER. (Thalictrum Dipterocarpum).

*Sow February and March; August to October.*

An attractive, Summer-flowering herbaceous perennial. Produces long spikes of lavender blooms with yellow anthers and ornamental fern-like foliage.

## LATHYRUS.

(See Perennial Pea).

## LEPTOSYNE (Giant Winter-Flowering Yellow Marguerite).

*Sow January to May.*

Bright flowers such as these are all too few during the Winter months. To ensure a full Winter display, sow in the early Autumn.

**Maritima** — Brilliant yellow, daisy-like flowers. Height, 2 feet.

## LINARIA (Toad Flax).

*Sow January to July.*

Dainty flower spikes are covered with tiny Antirrhinum-like florets, in some of the loveliest pastel shades.

**Excelsior Hybrids** (Maroccana) — Blue, light orange, purple, pink and many intermediate shades comprise the colour range. Height, 18 inches.

**Fairy Bouquet** (Maroccana) — Compact, dwarf plants growing only 8 inches high; ideal for rockeries.

## LOBELIA.

*Sow February to May.*

Blue flowers for edges, window boxes and rockeries are not over-plentiful, and the hardy Lobelia is a very welcome addition to the Spring garden.

### COMPACTA TYPE

**Crystal Palace**—Brilliant deep blue flowers with a background of attractive red-brown foliage. Height, 4 inches.

## LOVE-IN-A-MIST.

(See Nigella).

## LUPIN.

*Sow January to July.*

A lovely family of garden plants, producing flowers of the most delicate tints. The Lupin has a great advantage in that it does not exhaust the soil, but rather does it improve its general "tone."

### TALL ANNUAL LARGE SEEDED.

These will be easily recognised by their smooth foliage; 3 leaves to a stem and heavy branching top carried on a sturdy trunk.

**Tall Large Seeded Mixed**—A mixture of the separate colours listed below and blended into ideal proportions for garden display.

**Pink Pearl** — The favourite pink Lupin. Shell pink flowers, shading to lighter pink at the top with a dainty golden spot.

**Blue Gem**—Rich, deep blue, contrasted with yellow centre, which changes to a reddish-brown with age.

**White Pearl**—The best white yet evolved in this type of Lupin. Flowers change to mauve as they age.

**Hybridus Nigrescens** — A rich, deep blue with maroon markings. Vigorous branching habit.

**Nigrescens Mauve Pink**—Developed from the Blue Hybridus Nigrescens, is a delightful mauve shade lightening to pink at the tips.

**LUPIN** (continued)—

### DWARF ANNUAL VARIETIES

**Annual Midgets**—These delightful little plants have a low spreading habit and produce a mass of bloom spikes about 6 inches long, in a splendid variety of colour varying from light to dark blue and pale to medium pink, with a sprinkling of white. As they grow no more than 12 inches high, and flower longer than most Dwarf Lupins, they are ideal for border or massed bedding.

**Semi-Dwarf Yellow** (large seeded) — Rich canary-yellow flowers, with a sweet fragrance. Plants grow about 15 inches high, and have semi-spreading or trailing habit.

### HARTWIGII, or HAIRY-FOLIAGED TYPE (Small Seeded Annual).

More bushy in habit of growth than the Large Seeded type, but with long heads of bloom. The hairy foliage protects the plants against slugs and snails.

**Tall Small Seeded Mixed (Hartwigii type)** —A mixture of blue, rose and white shades, also available separately.

### PERENNIAL LUPIN.

**Russell Mixed** (Polyphyllus type)—It is impossible to describe in words the beauty of these superb columns of bloom and the many colour combinations they produce. Under good conditions the bloom heads are often 3 feet in length, and 6 inches across at the base. Whilst they have been grown with moderate success in districts similar to Sydney, they prefer the cool highland and southern climates.

## MARIGOLD (Tagetes).

Marigolds are divided into two main types: African and French.

### AFRICAN MARIGOLD.

*Sow August to December.*

One of our most hardy Summer-flowering annuals, and even under difficult conditions will provide a wealth of bright blooms over a long period.

**African Sunbowl Mixture.**

A mixture of the ever popular Guinea Gold and its yellow counterpart Yellow Supreme. An ideal blend for cut flowers as well as a bright garden display.

**Gigantea Sunset Giants**—Largest flowered of all the Marigolds, flowers often measure up to 4 inches across. The colours range from deep orange to pale lemon and are almost 100% fully double.

**Guinea Gold** — Large, erect flowers of a beautiful rich orange shade. Very hardy and free flowering. A tip-top strain for the home gardener or florist.

**Yellow Supreme** — Very similar to Guinea Gold, except the colour is a clear yellow. Odourless foliage.

**Curlytops**—Large yellow flowers similar in shape to a Chrysanthemum.

**Tall Double Mixed** — A mixture of the orange and yellow shades, very hardy type produces masses of double flowers.

### FRENCH MARIGOLDS.

*Sow December to May.*

The rich, warm shades of the French Marigold are very welcome during the colder months of the year. Plants are sturdy, and the foliage very dense, making an attractive background for the colourful flowers.

FRENCH MARIGOLDS (continued)—

**Tall Double French Mixed**—A popular mixture of yellow and mahogany shades. Plants grow about 2 feet high.

**Winter Delight (True Australian Strain)**—Large, mahogany-shaded blooms with golden-yellow crested centres. Very much in demand because of its long flowering period.

**Russet and Gold (Dwarf Double Mixed)**—A splendid bedding type. The plants grow only 12 inches high, and are well covered with rich brown and yellow shaded flowers.

**Flash (Dwarf Single)**—Bright velvety crimson flowers on dwarf plants only 9 inches high. Excellent for borders.

## MATHIOLA BICORNIS. (Night Scented Stock).

*Sow January to May.*

An ornamental rockery plant with lilac-shaded flowers. It has a delicate fragrance at night or after a shower of rain. Height, 12 inches.

## MATRICARIA (Camomile).

*Sow August to November.*

**Double White**—Dainty white button-shaped blossoms, measuring about half an inch in diameter. Even in warm districts, the plants will last for some years.

## MESEMBRYANTHEMUM.

*Sow September to December.*

**Criniflorum** — Colourful, dwarf - growing plants, suitable for edgings, rock gardens or crazy paths. In warm, sunny positions, there is a brilliant display of colour in such shades as pink, salmon, white and yellow.

## MEXICAN POPPY. (Hunnemannia Fumariaefolia).

*Sow September to November.*

Blossoms for the vases should be cut while the blooms are still in bud. Flowers are tulip-shaped of a glowing yellow colour opening as the sun rises.

## MIGNONETTE (Reseda).

*Sow January to October.*

For its sweet fragrance alone, the Mignonette is well worth planting, not only in the garden but in window boxes and in pots for indoor decoration.

**Yates' Large Flowered Crimson** — Large spikes of bloom with the typical Mignonette perfume. A great favourite with florists.

## MIMULUS (Monkey Flower).

*Sow February to May.*

In warmer districts these are grown in the semi-shade and are used for verandah boxes and hanging baskets.

**Yates' Large Flowered Hybrids**—Colourful pink, red and copper shades, many being "Tiger" spotted.

## MONARCH OF THE VELDT.

(See Venidium).

## NASTURTIUM.

*Sow August to April.*

One of our most colourful trailers, excellent for soils not quite rich enough for more delicate annuals. The non-trailing varieties make excellent border plants.

### DOUBLE GLEAM VARIETIES.

(Dwarf Trailing Type).

Splendid "cover" plants, with the bloom-studded trailers often spreading as much as 3 feet from the centre of the plant and growing no more than 18 inches high.

**Gleam Hybrids**—A colourful mixture of yellow, salmon, gold, orange and scarlet double flowers.

**Golden Gleam**—A splendid golden yellow. Flowers are fragrant and attractively double.

**Scarlet Gleam**—Sweetly fragrant double brilliant scarlet flowers. Freely produced over a long period.

### DWARF TYPE.

(Non Trailing).

A very welcome type where compact growth is desired and where it is essential that the plants do not intrude on to other parts of the garden, such as pathways and lawns

**Dwarf Double Globe Mixed**—A mixture of the loveliest shades, among which are crimson, orange, yellow, salmon, scarlet and rose.

## NEMESIA.

*Sow January to July*

More and more home gardeners are discovering what a lovely flower is the Nemesia. They like the striking colours and the almost unbelievable amount of blooms that these plants produce.

**Large Flowered Tall Mixed (Strumosa)**—Dainty bloom spikes in vivid colours, such as rose, scarlet, crimson and orange overlaid with rich dark blotches. Height, 15 inches.

### DWARF COMPACTA VARIETIES.

**Compacta Grandiflora Mixed** — Delightful subjects for border edging. The colour range is just as bright as the taller type. Height, 9 inches.

**Blue Gem (Compacta)**—A warm, soft blue shade and valuable where blue flowers are required.

## NEMOPHILA.

*Sow February to May.*

Dwarf, hardy annuals for cool, partially shaded places.

**Insignis (Baby Blue Eyes)**—Dainty, blue flowers with white centres attractively spaced on sturdy stems. Height, 6 to 12 inches.

## NIEREMBERGIA. (Dwarf Cupflower).

*Sow February to May.*

**Hippomanica**—A delightful perennial rock garden plant, 5-6 inches high, with a spread of 8-10 inches. Lavender blue flowers.

## NIGELLA (Love-in-a-Mist).

*Sow February to April.*

**Miss Jekyl**—Popularly known as "Love-in-a-Mist" because the light blue flowers are so quaintly hidden in the fern-like foliage. Height, 15 inches.

## ORNAMENTAL CHILI.

*Sow August to December.*

A colourful Ornamental, the plants grow up to 24 inches high covered with numerous heart-shaped berries. The colour of these change from white to purple and finally to yellow and scarlet shades as they mature.

## PAINTED DAISY.
## (Chrysanthemum Tricolor).

*Sow February to July.*

A varied assortment of the brightest colours. The single, daisy-like blooms have many unusual colour combinations, such as white, yellow, lavender and red. These are contrasted with rich golden and red "zones" and jet black centres. Height, 2½ feet.

## PANSY.

*Sow December to June.*

No garden is complete without Pansies. Use them as borders or if you have the room devote a whole bed to them. Give them plenty of space, feed them well, and they will repay you with a mass of colour in the Spring.

**Yates' Champion Fancy** — A magnificent strain of Pansy, featuring large flowers and rich markings. A variety both for the home garden and exhibition.

**Roggli's Giants** — The most popular and widely grown of all the Pansies. Noted for its large well-formed blooms and rich striking colours.

**Elizabethan Ruffles**—A most beautiful type. The attractive curled or ruffled petals gives each flower a double appearance. Very free flowering and compact type. The colour range is extensive and includes some lovely pastel shades. A Yates' 1953 introduction.

**Yates' Regal** — Early flowering upright vigorous plants and long stems are characteristic of this variety. The flowers are large, beautifully marked; some are slightly frilled.

**Yates' Superb Giants**—A popular and well known garden Pansy, has large flowers and many brilliant colour variations.

**Engleman's Giants** — Very large flowers ranging in colour from deep purple to many varied shades of yellow and cream. Plants are dwarf and compact.

**Ullswater Blue**—Large, rich blue flowers with darker markings.

## PELARGONIUM.

*Sow March to June.*

Hardy perennial and easily grown. Transplant seedlings in Spring and first flowering will commence during following Autumn.

**Zonale Mixed**—A mixture of true geraniums in shades of pink, salmon and scarlet. Includes single and semi-double types.

## PENTSTEMON.

*Sow February to May.*

**Gloxinia Flowered Hybrids** — Large, open, bell-shaped flowers in a number of brilliant colours and markings.

## PERENNIAL PEA.

*Sow February to April.*

Hardy climbing plants that are perennial in practically all districts. They may be used for screening fences, and are never so vigorous as to become a nuisance. The growth is similar to that of Sweet Peas.

**Nasturtium—Gleam Hybrids.**

PERENNIAL PEA (continued)—

**Argentine Perennial Pea (Lathyrus Pubescens)**—During the Spring, plants are covered with long spikes of dainty pale violet blossoms.

**Mixed (Lathyrus Latifolius)**—The red, rose and white pea-like trusses of flowers are most decorative in vases.

## PETUNIA.

*Sow August to February.*

Choose a warm, sunny spot and some moderately good loam for an abundance of bright, showy flowers.

### LARGE FLOWERED TYPES.

**Yates' Super Double** — The true double Petunia so sought after by enthusiasts. Large fluffy ball-like flowers in shades of rose, pink and light mauve. A Yates' 1951 Novelty

**Yates' Superb Exhibition** — A magnificent strain of large, fully frilled single flowers. The intricate veins and margins overlaying both the rich and delicate colours are fully displayed by the wide, open blooms.

### DWARF SINGLE BEDDING TYPES.

**Dwarf Bedding Mixed**—Compact, bushy habit, and a fine assortment of colours, such as rich rose, pastel blue, deep violet and white. Height, 12 inches.

**Rosy Morn Improved (Rose of Heaven)**—A very popular Petunia, often grown in mass display. Plants are very free flowering, and the colour a rich rose.

**Silvery Blue**—As the flowers open the colour is deep lilac and later softens to a dainty light blue with a silvery sheen.

**Fire Chief** — Bright scarlet blossoms on dwarf compact plants. Often described as the reddest of the Petunias.

**Violacea**—Beautiful rich, flowing, deep violet colour, that does not fade. Ideal for massing where a dark colour is required.

## PHLOX DRUMMONDII.

*Sow August to February.*

From early Spring to mid-Summer, Phlox flaunt their gay colours wherever we may choose to plant them. Give them a place in the sun and you will not be disappointed at the generous display. They are not exacting in their requirements and need only a good garden loam and a moderate amount of water.

**Yates' Derwent Large-Flowered Mixed**—There is an almost unlimited colour range, which includes the best of the self colours, and a wide range of the "eyed" types.

**Bright Eyes Mixture**—This is an exclusive hand-blended mixture of the finest eyed varieties. Each flower has the bright centre eye.

**Drummondii Mixed**—A remarkably varied mixture of all the bright colours.

Separate Colours.

Many gardeners like to be able to grow the choicest colours separately, and we have selected three which are sure to be popular: **Crimson White Eye, Chamois Rose, and Scarlet.**

**Extra Dwarf Mixed** — Dwarf, compact plants with a wide selection of colours. A first-class border plant.

**Cuspidata (Star Phlox)**—Quaintly star-shaped flowers in all the well-known Phlox colours.

## POINCIANA GILLESII.

## (Bird of Paradise Flower).

*Sow September to November.*

Semi-tropical shrub growing up to 6 feet, red flowers with yellow anthers.

## POLYANTHUS.

*Sow February to April.*

A most attractive Spring-flowering plant for growing in moist, semi-shaded places or in bush houses.

**Yates' Selected Gold Laced**—The flowers are not unlike large Primroses in a rich and varied assortment of colour.

## POOR MAN'S ORCHID.

## (Schizanthus Wisetonensis).

*Sow December to May.*

**New Hybrids**—An outstanding collection of large flowered hybrids, with the daintiest markings, and including many pastel shades.

## ICELAND POPPY.

*Sow December to May.*

A planting of these will give both a bright garden display and a wealth of flowers for cutting.

**Yates' Artists' Glory**—Iceland Poppies at their best are represented in this variety. It is a special blend of pastel shades, such as salmon pink, old gold, apricot, etc. Long vigorous stems and large flowers.

**Yates' Sunbeam Florist Mixture**—All the popular Iceland Poppy colours, including tangerine, yellow, orange, white and many of the art shades are blended into this mixture. It is noted for its large flowers and long stems.

Iceland Poppy—Artists' Glory.

ICELAND POPPY (Continued)—

**Coonara Giants (Rose Tints)** — Although not as large in the flowers or stems as the above varieties it is made up of deep pink shades not found in any other Poppy.

**Gartford Giants**—A large flowered mixture of Iceland Poppy colours, grown very largely in Victoria.

**Gartford Art Tones**—A Victorian strain of art shade Poppies. Many have picotee edges.

**Florists' Orange** —The well-known rich orange Poppy, noted for its large flowers and long stems.

**Giant Yellow**—Has the same features as the Florists' Orange except that the colour is a rich canary yellow.

## SHIRLEY POPPY.

An old garden favourite especially in cooler climates. The plants grow up to a height of about 3 feet. The flowers are in beautiful shades of salmon, rose, pink and red.

## QUEEN POPPY.

Very similar to the Shirley Poppy with large double flowers, many of which have picotee edges.

## PORTULACA.

## (Sun Plant or Pig Face).

*Sow September to February.*

The brilliance of the Portulaca is unsurpassed during Summer months.

**Yates' Sunnybank Mixed**—Single and semi-double flowers in such colours as scarlet, salmon, crimson, yellow and rose.

**Single Mixed** — A bright and showy mixture. Plants literally cover themselves with hundreds of single flowers during the hottest and driest months.

**Double Mixed** — Semi-double and double flowers in the most attractive shades.

## PRIMULA.

*Sow December to May.*

### MALACOIDES TYPE.

**Dawkins Pink (Carmine Rose)**—Deep rosy-pink florets that retain their colour even in the sunshine.

### OBCONICA TYPE.

**Large Flowered**—Colours range from white to rose, through lavender to purple shades.

## RANUNCULUS.

*Plant bulbs February to July.*
*Sow seed January to April.*

**Yates' Superb Mixed**—A favourite mixture; flowers are single, semi-double and double in a splendid range of colours. Separate colours are available in bulbs only. For further particulars ask for Yates' Bulb List, available each March.

## RHODANTHE.
## (Everlasting Daisy).

*Sow August to October.*

**Mixed**—Hardy "Everlastings" with dainty, drooping flowerheads that can be dried for permanent indoor decoration. Height, 12 inches. Rose, pink and white.

## RUDBECKIA (Cone Flower).

*Sow September to December*

**Kelvedon Star** — Unusually marked flowers with deep golden and mahogany zones on the petals, contrasting with a rich black cone-shaped centre. Height, 3 feet.

## SALPIGLOSSIS.

*Sow August to November.*

An unusually colourful flower for the Summer months. Slender wiry stalks carry one or more large Lily-like flowers.

**Yates' Emperor Mixed**—A rich blend of such colours as blue, purple, rose and crimson, many of which are overlaid with "netted" veining.

## SALVIA (Flowering Sage).

*Sow September to November.*

To enjoy the full beauty of Salvia, choose a bed alongside a sunny wall or fence where they will bloom constantly throughout the warmer months.

**Splendens Bonfire**—Fiery scarlet blooms on long, graceful spikes up to 3 feet high.

**Extra Dwarf Scarlet**—Flowers equal in every way to Bonfire, but plants grow no more than 18 inches high.

**Farinacea (Blue Bedder)**—Delicate, Wedgwood-blue.

## SAPONARIA VACCARIA ROSEA.

(See Big Gyp).

## SCABIOSA (Pin Cushion).

*Sow January to September.*

Scabiosa can be sown both in the Spring and Autumn, but the latter is preferable in warm climates. There are delightful colours and the blooms lend thmselves to border display and for cutting.

**Yates' Artists' Mixture**—A wide range of all the choice colours.

## SCHIZANTHUS.

(See Poor Man's Orchid).

## SHASTA DAISY (Chrysanthemum Leucanthemum).

*Sow August to October.*

Large, single white flowers with golden-yellow centres.

## SNAPDRAGON.
## (Antirrhinum).

*Sow all Seasons.*

### TALL GIANT, LARGE-FLOWERED TYPE (Rust Resistant).

**Yates' Tall Giant Large-Flowered Mixed**—When really tall "Snaps" are required this is the strain to grow. Magnificent blooms in a great variety of colours are carried on stems up to 3 feet long. The colours are made up with rich tango shades, deep red, pink, yellow, etc., all blended together to give a dazzling display.

**Tango Shades**—Few flowers can equal the Antirrhinum for the rich tango, bronze, gold, yellow and copper shades. Many of them carrying two colours on the one flower. This is a mixture of all the best tango varieties.

**Rose Shades**—A special blended mixture of the best rose and pink shades.

### Separate Colours.

Many gardeners like to grow masses of their favourite coloured Antirrhinum. We have selected the following varieties as the best of their colour: Rose King (brilliant rose), **Old Gold** (Gotelind), deep tango with a lighter shade in the centre, and

### SEMI-DWARF MAJESTIC.

**Semi-Dwarf Majestic Mixed**—Although not so tall growing (about 18 inches) as the Giants, the magnificent flower heads and individual florets are equally as large, and borne on strong straight stems. This mixture is blended from a wide range of selected colours.

**Tetra Mixed**—A somewhat recent development in America is the Tetra Antirrhinum. A scientific creation in which chromosones are doubled with the use of colchicine, giving the flowers larger florets and ruffled edges. They may not be 100% true, but they are a new development which we feel sure will prove of interest to the Australian gardeners.

### TOM THUMB, EXTRA DWARF TYPE.

**Tom Thumb Mixed**—A very dwarf type, plants grow about 9 inches high, but, by frequently pinching back, the young shoots will grow even lower than this, and is therefore ideal for edgings.

## SNOW ON THE MOUNTAIN.

(See Euphorbia).

*Sow September to December.*

**Variegata**—A most attractive foliage plant. The large green leaves are generously veined and lined with snow-white markings. Height, 2 feet.

## SPARAXIS.

*Plant February to July.*

Mixed colours for a vivid display (bulbs only).

## STATICE (Sea Lavender).

### ANNUAL VARIETIES.

*Sow January to September.*

An easily-grown plant; the flowers have a papery texture and are borne in numerous bracts on stems often 2 feet in length. They last several weeks after cutting and need not be put in water.

**Sinuata Hybrids** — Low growing plants from which rise the long stalks bearing the blossoms. The colours range from white through yellow, blue and rose.

**True Blue**—Rich deep blue so popular with the flower growers.

**Pastel Shades** — Collection of soft intermediate shades of soft pink, soft lavender, salmon, fawn and many others.

### PERENNIAL VARIETY.

*Sow September to December.*

**Perezii Multiflora** — Bold, stately stems, bearing pure deep blue flowers. Height, 3 feet.

## STOCK.

*Sow December to May.*

Providing the main essentials for cultivation are available, Stocks are among our most easily grown plants.

**Yates' Giant Perfection Mixed**—A balanced mixture of all the best varieties, with colours ranging from clear white, through the many shades of pink and lilac to deep purples and the strikingly brilliant dark reds. It is large flowered on long, strong stems and will produce an abundance of cut flowers in addition to a striking garden display. Like all Yates' Stocks these are bred to produce a very high percentage of doubles.

**Giant Imperial Mixed** — A mixture blended to formula of all the Giant Imperial types. The plants are slightly more base branching than the Giant Perfections, making them a slightly better cut flower. Its colours comprise all the many shades which are found in the modern varieties of Stock.

**Separate Colours**—For those gardeners who like a mass display of one colour in Stocks, we have selected the following list representing what we believe to be the finest varieties for the home gardener: **Fiery Blood Red**—a striking deep red; **Carmine King**—bright reddish carmine; **Glory of Australia**—rich violet; **Heatham Beauty**—rose pink with just a touch of salmon; **Roselight**—attractive rose pink noted for its long stems; **Empress Augustus Victoria** — attractive silvery lilac; **Aurora**—soft shade of buff suffused with rose; **Golden Ball**—a new, rich, creamy yellow.

**Column Mixed (Non Branching)**—Produce one stem only with large flowers which are nearly twice the size of other Stocks. Should be grown much closer together than the branching varieties. It is an outstanding type for cutting.

## STRAW FLOWER. (Helichrysum).

*Sow February to April and August and September.*

To preserve flowers, pick them when the buds are half open and suspend them head downwards in bunches for drying. Height, 2 feet.

**Mixed Colours**—A bright mixture of salmon, rose, crimson, scarlet, yellow and white.

## STURT'S DESERT PEA. (Clianthus Dampieri).

*Sow August to December.*

Brilliant deep crimson flowers with jet black centres. Comes from the dry Australian interior where it thrives under fierce heat and in poor sandy soil. Useful for trailing over rock walls, etc.

## SUNFLOWER (Helianthus).

*Sow September to December.*

These thrive in hot, sunny corners.

### MEDIUM AND DWARF VARIETIES.

**Sungold** — Showy, fully double globe-like blooms of a bright yellow shade. These unusual flowers are made up of tightly packed quilled petals, forming a glowing golden ball. Height, 4 feet.

**Bronze Hybrids (Purpureus)** — Unusual bronze and coppery-green shades. Height, 3½ feet.

**Miniature**—Bright yellow single flowers, contrasted with rich black centres. Height, 3 feet.

### TALL VARIETIES.

**Tall Single Red**—Purple red petals tipped with golden-yellow, surround a purplish-black centre. Height, 7 feet.

**Tall Single Yellow** — Large bright yellow flowers. Height, 5 feet.

## SWAN RIVER DAISY.

(See Brachycome).

*Sow August to February.*

A native flower from Western Australia, bearing single blue and white blooms, not unlike a small Cineraria. Very free-flowering displaying a continuous show of bloom throughout the Summer. Height, 9 inches

## SWEET PEA.

*Sow January to May.*

### YATES' EARLY FLOWERING MULTI-FLOWERED TYPE.

This spectacular Yates' introduction is so outstanding that we confidently expect it will soon supersede the Early Flowering Spencer type so widely grown at present.

In season it is a true early or Winter flowering strain and produces its blooms over a long period. Plant habit and growth is very good, much more vigorous than present day types. Outstanding feature of this new multiflowered type is its ability to produce regularly "five," "six" and even "seven" blooms per stem.

The individual flower is large and beautifully frilled. of good substance and borne on extra long very strong stems. Very free flowering and produces more blooms per plant than any other strain.

**Yates' Seventh Heaven (Multiflowered)**—This mixture contains all the colours yet available and includes various shades of light and dark pinks, also salmon, orange, cerise, lavender and white.

**Separate Colours (Multiflowered).**

The following varieties are expected to be available separately and additional colours will be offered as soon as they are introduced.

**Radiance**—Lovely deep rose, large frilled flowers on long stems.

**Exquisite**—Warm salmon pink upon opening and shading slightly paler as the bloom ages. Large very frilled blooms.

SWEET PEA (continued)—

**Loveliness**—Colour is clear rose pink on white ground. Very vigorous variety.

**Dazzler**—Large nicely frilled flowers. Colour opens rich salmon and deepens to bright orange cerise as the bloom ages.

**Daintiness**—Colour is very soft pink. Flowers are nicely frilled and borne on long stems.

**Sweetness**—Light rose pink in colour. Very vigorous variety.

### YATES' AUSTRALIAN EARLY FLOWERING (Spencer).

*Sow January to May.*

In 1911, Yates introduced Yarrawa, the original Australian Early Flowering Sweet Pea. Since then the list of varieties has grown and with it both the size of flower and range of colour, until to-day Yates' Early Flowering Sweet Peas are famous throughout Australia and many overseas countries.

**Yates' Best 12**—This famous collection comprises 12 packets of named Sweet Peas chosen as the season's best. Well known to all Sweet Pea growers. In it the exhibition grower will find the pick of all the modern varieties. The home gardener, with this collection, has the enjoyment of growing these 12 best Sweet Peas separately and planning the lay out of colours for the most striking effect.

**Yates' Prize Packet**—A mixture made up of Yates' Best 12 with the addition of 8 other good varieties all selected for size and quality of bloom and blended in proportion for a vivid display. Each packet is specially filled to ensure the exact proportion of each and every variety.

**Yates' First Choice Mixed**—The popular mixture with all home gardeners. Hand blended from the finest colours to give a complete range of many choice colours now available in Sweet Peas.

**Yates' Sunshine Mixture (Mixed Hybrids)**—Every colour in the early flowering Sweet Pea is included in this mixture; it is noted both for its exceptional range of colour, large flowers and long stems.

**Mixed Flakes**—The unusual effect of these flaked bi-colour Sweet Peas has caught the imagination of many gardeners. This mixture contains all the flaked types.

### SEPARATE COLOURS.

We have selected from our list the following varieties which we recommend as being the choice of the newer large flowered varieties of special appeal to home gardeners. Our "Best 12" is drawn from the following list :

**Pink and Salmon Shades.**

**Attraction** (bright rose), excellent for Winter blooming; **Derwent Rose**—rich rose-pink on a white ground, noted for its long stems with a high percentage of "fives"; **Shirley Temple**—a heavy cropping rose-pink on a white ground; **Chime**—a beautiful soft salmon-pink, one of the most attractive colours in Sweet Peas; **Clarrie**—a glowing mid-salmon, a new and distinct shade in Sweet Peas; **Fairy**—an old and well known variety of rich salmon-pink; **Sequoia**—rich pink with large flowers on long, strong stems.

SWEET PEA (continued)—

**Orange Shades.**

**Fiesta**—a new large flowered variety of a striking deep orange; **Victory**—bright orange with slightly frilled flowers; **Vulcan**—an old well-known variety now much improved by larger flowers.

**Cerise, Crimson and Maroon Shades.**

**Vivian**—a deeper colour and a slightly larger flower than Ajax; **Mars**—a heavy cropping rich red; **Top Sergeant**—a newcomer to our list, darkest of all the reds.

**Cream, Pink and White Shades.**

**Daphne** — soft, creamy-pink and white ground; **Delicious**—a soft pink on a cream ground with deeper shading towards the edge.

**White Elfin**—Pure white.

**Lavender, Mauve and Blue Shades.**

**Blue Wonder**—a popular free flowering mid-blue.

**Lavender Glory**—a beautifully frilled pale lavender; **Rhapsody** — a rich lavender of exceptionally fine form; **Moonlight**—rich violet blue; **Triumph**—light mauve shading to a deeper colour as the flower ages.

### LATE FLOWERING SPENCER MIXED.

The large flowered late flowering Sweet Pea popular in Europe, North America and other cold climates. In Australia it is suitable only for the coldest districts of Victoria and Tasmania.

**Mixed Colours**—Contains all the many splendid colours available in this type.

## SWEET SULTAN.
## (Centaurea Imperialis).

*Sow February to July.*

A most unusual and decorative flower, growing to perfection in the cooler districts.

**Mixed Colours**—Fragrant, fringed blossoms, often measuring 3 inches across, that will last up to ten days after cutting. Glorious colours, such as rose, lilac, blue and white. Height, 2½ feet.

## SWEET WILLIAM.
## (Dianthus Barbatus).

*Sow January to May.*

**Double Mixed**—The bright colours are enhanced by deep rich markings.

## SWEET WIVELSFIELD.

*Sow January to May.*

Even more free flowering than Sweet William, to which it is closely related. Greatly favoured in warm districts such as Sydney.

**Single Mixed** — During the Winter and Spring months plants send up dozens of dainty stems carrying Dianthus-like flowers in a remarkable range of colours.

## THALICTRUM.

**(See Lavender Shower).**

## TITHONIA.
## (Mexican Sunflower).

*Sow September to December.*

**Torch** — A new dwarf type, grows three feet high. Rich orange daisy-like flowers. Can be grown like Zinnia.

## TORENIA.

*Sow August to December.*

Waiting for these delightful blue flowers to almost completely cover the attractive plants is one of the pleasures of Summer gardening.

**Fournieri**—Light blue and purple, yellow-throated flowers that are ideal for window boxes, rockery or dwarf-edging culture. Height, 10 inches.

## URSINIA.

## (Jewel of the Veldt).

*Sow September to November.*

**Anethoides Hybrids** — Striking daisy-like flowers in cream, orange and yellow shades blooming during the Summer months.

## VENIDIUM.

## (Monarch of the Veldt).

*Sow January to April.*

**Fastuosum Hybrids** — Daisy-fashioned flowers with rich deep centres, and surrounded with bright petals in such colours as apricot, salmon, canary and golden yellow, and white. Height, 2 feet.

## VERBENA.

*Sow all Seasons.*

**Yates' Large Flowered Extra Choice Mixed**—A brilliant range of colours—rose, scarlet, crimson, blue, purple and cream, many of which are contrasted with shining white centres.

## VIOLA.

*Sow December to June.*

One of the most popular border flowers but equally suitable for massed bedding. They are just a carpet of colour when in flower.

**Yates' Spring Glory Mixed** — Carefully blended from the best colours to ensure the right proportions of light and dark shades.

**Apricot**—A delicate shade of clear apricot.

**Blue Perfection**—An entrancing mid-blue.

**Lutea Splendens**—Showy, pure yellow flowers.

## VIRGINIAN STOCK.

## (French Forget-Me-Not).

*Sow February to July.*

For a brilliant display of these hardy attractive annuals, scatter the seeds over as wide an area as possible. Cover lightly with fine soil.

**Mixed**—Yellow, crimson and carmine blossoms completely cover the dainty plants, which grow about 6 inches high.

## VISCARIA.

*Sow September to December*

A warmth-loving Summer-flowering annual. The plants produce a seemingly impossible number of flowers.

**Mixed**—Single white, blue, lavender and pink flowers on stems about 12 inches long.

## WALLFLOWER.

*Sow December to June.*

The early-flowering Wallflower is one of our most easily grown Winter and Spring flowering annuals. Very richly coloured blossoms freely produced on long stems and exquisitely fragrant have made them a first favourite with all keen gardeners.

### ANNUAL VARIETIES.

**Yates' Single Early Flowering Russet Shades Mixed** — Selected for its rich colours and giant flowers on long stems. Very free and early flowering, strong robust petals. Something really out of the ordinary in Wallflowers.

Verbena—Yates' Large Flowered.

WALLFLOWER (continued)—

**Single Early Flowering Mixed**—Consists of a wide range of colours ,such as brown, golden-yellow, ruby and blood red. Large flowers and long stems.

**Gilded Giants**—Pure yellow giant flowers, exquisitely fragrant and most effective when massed in wide borders.

### PERENNIAL VARIETY.

*(For Cool Districts)*

Admirably suited to the cooler districts where sowings are made in the Autumn for Spring and early Summer flowers.

**Single Late Flowering Mixed** — Large golden-yellow, ruby and blood red flowers.

## WARATAH (Telopea Speciosissima).

The N.S.W. national flower, and one of the most stately in the Australian bush, bearing vivid red large cone-shaped flowers in great profusion.

## ZINNIA.

*Sow September to December.*

Few flowers equal Zinnias for bright vivid colours.

**Yates' Brilliant Giants** — A very special blend of the finest colours in the Giant Dahlia Flowered varieties. Many of the blooms are up to 6 inches across and only the brightest colours, such as orange, gold, scarlet, yellow, crimson and rose are included. The ideal Zinnia for both the keen home gardener and the show enthusiast.

**Giant Dahlia Flowered Mixed**—A gay mixture of all the Zinnia colours. Large fully double flowers on long strong stems.

**Californian Giants Mixed**—Grows a little taller than the Dahlia Flowered, but has wider and somewhat flatter flowers. Popular as a cut flower and noted for the attractive soft pastel shades included in this mixture.

**Lilliput Mixed (also known as Pompone Zinnia)** — Masses of small ball-shaped blooms about 1½ inches across, cover these plants all through the flowering season. All the well-known Zinnia

ZINNIA (continued)—

colours, as well as a sprinkling of pastel shades are included in this mixture. The plants grow approximately 18 inches high.

**Haageana**—Plants are only about 15 inches high, producing single and semi-double flowers up to 1½ inches across; colours range from lemon to deep orange. Many flowers are blotched with deep maroon.

**Linearis**—Dwarf semi-trailing plants 9-12 inches high with masses of tiny golden-yellow flowers. Most attractive when used as a border.

**Separate Colours.**

For those interested in mass displays of Zinnias in separate colours, we suggest the following :—

**Giant Dahlia Flowered.**

**Canary Bird**—Canary yellow. **Eldorado**—Glowing salmon. **Golden State**—Golden orange deeper towards centre. **Illumination**—Deep rose. **Oriole**—Orange and gold. **Scarlet Flame**—Bright scarlet.

**Coquette.**

The loveliest Zinnias ever created, soon to be a first favourite with lovers of the ever colourful Zinnia. Immense, fluffy and ruffled flowers 6 inches across, with graceful, curved petals. They resemble large Chrysanthemums, and do not show the "stiffness" of the older types. The beautiful range of colours includes some unusual colour combinations, not previously seen in Zinnias. The blooms are freely produced on long stems. They will flower from mid-summer to late autumn. Also an excellent grower.

**Zinnia Gaillardia Flowered Mixed**—Flowers resemble double Gaillardias in both form and colour. Very bright mixture and an attractive type. Medium sized flowers.

# FLOWERING VINES and CREEPERS (from Seed).

## ANNUAL VARIETIES.

*Sow in Spring.*

### CONVOLVULUS.

**Major Single Mixed** — A quick-growing drought-resisting plant, requiring only some light wire netting or similar support on which to climb. In Summer and Autumn there is a profusion of colours, including scarlet, rose, dark and light blue, crimson and carmine flowers.

### GOURDS.

**Ornamental Mixed** — Very quick-growing and well known for its ornamental fruits of curious shapes and colourings. Requires fairly strong support and is useful for growing over the roofs of out-houses and sheds. Fruits show their full colour when they are ripe and are then often dried for use as ornaments.

### DISHCLOTH GOURD.

**(Also known as Loofa or Luffa).**

This is the Gourd from which the domestic and washing loofas are made. Matured fruits are dried out, leaving a spongy material which can be used in water.

VINES AND CREEPERS (continued)—

### MINA LOBATA.

This is probably the brightest and most popular of the climbing annual plants. It is quick-growing and in Summer is covered with sprays of orange and red blossoms and continues to flower until the Autumn months. To ensure an abundance of blooms, plant in a fairly rich soil and give ample water during dry weather.

### MORNING GLORY (Ipomoea).

There are several varieties but only three are regularly grown. These climbers are very easily cultivated and once established require very little attention.

**Scarlett O'Hara**—Rosy-crimson flowers and probably the best of the varieties.

**Heavenly Blue Improved** — Flowers are deep blue, lightening towards the centre.

## PERENNIAL VARIETIES.

*Sow in Spring.*

### ANTIGONON LEPTOPUS.

Masses of bright rose flowers on graceful stems during the Summer and Autumn months. Plants die down during the Winter and make new growth during the Spring. Likes a fairly rich soil and ample water during dry weather.

### BANANA PASSIONFRUIT.

**(Tacsonia Mollissima).**

Extremely decorative flowers of soft pink are followed by edible fruit. A useful evergreen for low fences or trellis.

### BIGNONIA TWEEDIANA.

One of the brightest evergreen climbers and fairly frost-resisting in temperate climates. Showy yellow flowers appear in Summer and Autumn.

### COBAEA SCANDENS.

**(Cup and Saucer Vine).**

A vigorous evergreen with an abundance of true bell-shaped purple blossoms. A quick, vigorous grower which will cling to brick or similar surfaces.

### DOLICHOS LIGNOSUS.

**(Cocks and Hens).**

A vigorous and easily grown vine withstanding dry weather and growing freely even in poor soils. Masses of small pink flowers appear during the Summer months.

### DUTCHMAN'S PIPE.

**(Aristolochia Elegans).**

Derives its name from the quaint richly coloured flowers on pipe-like stems. An evergreen that thrives in partial shade, sheltered from strong winds.

### PASSIONFRUIT (Passiflora Edulis).

The well-known Passionfruit of commerce and has very decorative blossoms. An evergreen that does well in climates similar to and warmer than Sydney.

PERENNIAL PEA.—See page 245.

### THUNBERGIA GIBSONI.

A low-growing creeper and valuable when there is only light support, such as the side of a bush house. Flowers are a brilliant orange and appear during the Summer months; evergreen.

# INDEX

A
Page
Achimene 157, 223
Acroclinium 81, 238
Agapanthus 146, 217
Ageratum 81, 238
Alocasia 157
Alonsoa 216
Alstroemeria 147, 221
Alyssum 82, 238
Amaranthus 82, 238
Amaryllis 147, 217
Anchusa 83, 238
Anemone 83, 147, 172, 238
Annuals (Meaning of) 79
Anomatheca 217
Antigonon 225, 253
Antirrhinum (Snapdragon) 83, 249
Aphides 78, 207
Aphis, Woolly 207
Apples 195
Apricots 196
Aquilegia 84, 238
Arctotis 85, 238
Aristolochia 225, 253
Arsenate of Lead 206
Artichoke 43, 230
Asparagus 43, 230
Asparagus Fern 85, 253
Aster 85, 238
Aubretia 86, 238

B
Babiana 151, 217
Balsam 86, 239
Banana Passion Fruit 253
Beans (Broad) 46, 231
Beans (Climbing) 231
Beans (French) 46, 230, 231
Bean Fly 208
Beet (Red) 47, 231
Beet (Silver) 48, 231
Beetles 206
Begonias (Fibrous) 87, 239
Begonias (Tuberous) 87, 147, 239
Bellis Perennis 88, 239
Berry Fruits 199, 200
Biennials (Meaning of) 79
Bignonia Tweediana 225, 253
Big Gyp 131, 239, 249
Billbergia 157, 217
Black Spot 212
Black Spot in Tomatoes 212
Blue Lace Flower (see Didiscus).
Bordeaux Mixture 213
Borecole 48, 231
Boronia 88, 239
Bougainvillea 227
Bouvardia 192, 217
Brachycome 88, 239, 250
Broccoli 49, 231
Browallia 89, 239
Brunsvigia 148, 217
Brussels Sprouts 49, 231
Bulbs in Bowls 146
Bush-Houses 179

C
Cabbage 50, 201, 232
Cabbage, Chinese 52, 231
Caladium 148, 223
Calceolaria 89, 239
Calendula 90, 239
Californian Poppy (see Eschscholtzia).
Calla 148, 219
Calliopsis 90, 239
Candytuft 91, 240
Canna 91, 240
Canterbury Bells 92, 240
Cape Gooseberry 52, 232
Capsicum (Ornamental Chili) 92, 240 247,
Capsicum (Pepper) 53, 232
Carnations 92, 240
Carrot 53, 232, 233
Caterpillars 204
Cauliflower 54, 55, 233
Celeriac 56

Page
Celery 54, 233
Celosia 94, 240
Celtuce 215
Centaurea 95, 240, 241
Cereal Crops 22
Cheiranthus 95, 240
Cherries 195
Chewing Insects 203
Chicory 56
Chokos 56
Christmas Bush 95, 240
Chrysanthemum (Annual) 96, 241
Chrysanthemum (Perennial) 97, 241
Cineraria 99, 241
Citrus Fruits 201
Clarkia 99, 241
Clianthus (see Sturt's Desert Pea).
Climbing Plants 191, 253
Clivia 157, 217
Clovers 21
Cobaea Scandens 225, 253
Cockscomb 100, 241
Codling Moth 204
Coleus 100, 241
Colloidal Sulphur 214
Compost Heaps 19
Convolvulus 241, 253
Copper Oxychloride 214
Corn Flower (see Centaurea).
Corrosive Sublimate 214
Cosmos 100, 241
Cow Peas 22
Cress 57, 233
Crickets 206
Crinum 157, 217
Crocus 217
Cucumber 57, 76, 233
Cut-worms 205
Cuphea 101, 241
Cyclamen 101, 149, 172, 242
Cynoglossum 102, 242
Cyphomandra 57, 233
Cyrtanthus 157

D
Daffodil 149, 172 217, 242
Dahlia 102, 242
Daisy (Michaelmas) 192
Damping Off 212
D.D.T. 206, 209
Delphinium 105, 192, 242
Depth to Plant 144
Derris Dust 206
Dianthus 105, 242
Didiscus 105, 242
Digging 7, 8
Dimorphotheca 106, 242
Dolichos 225, 253
Draining 9, 10
Dutchman's Pipe 253

E
Early Blight 212
Egg Plant 57, 233
Endive 58, 233
Eschscholtzia 106, 240
Eucharis 157
Euphorbia 106, 243, 249
Everlasting Daisy (see Acroclinium).

F
Ferns 217
Fertilisers, Use of 25, 26
Field Peas 21
Figs 197
Flannel Flower 106, 243
Flower Garden, The—Chapter 7 79-142
Flowering Bulbs—Chapter 8 143-158
  When and Where They Grow 144
  Soil Requirements 144
  Situation 144
  Depth to Plant 144
  Planting in Grassland 145
  Pot Culture 145
  Bulbs in Bowls 146
  Cultivation Notes of Varieties 146, 156
  Other Var. Well Worth Growing, 157, 158

Page
Flowering Vines and Creepers .. 142, 253
Forget-Me-Not .. 107, 243
Formalin .. 214
Foxglove .. 107, 243
Frames .. 34
Frangipanni .. 227
Freesias .. 107, 172, 243
Front Garden, The .. 16
Fruit Fly .. 204
Fruit Trees and Fruiting Plants—
  Chapter 13 .. 193-202
Fuchsia .. 192
Furniture (Garden) .. 14
Fusarium Wilt .. 212

G

Gaillardia .. 108, 243
Garlic .. 219, 233
Geranium (see Pelargonium).
Gerbera .. 108, 192, 243
Geum .. 109, 243
Gherkin .. 225
Gladioli .. 109, 151, 157, 172, 243
Glass Frames .. 179
Glass Houses .. 178
Globe Amaranth .. 109, 243
Gloriosa Superba .. 157, 221
Gloxinia .. 110, 157, 182, 243
Godetia .. 110, 243
Gomphrena (see Globe Amaranth).
Gourd, Ornamental .. 225, 253
Grape Vines .. 197, 221
Grasses (Ornamental) .. 216
Grasshoppers .. 206
Green Manuring .. 20
Green manuring (crops) .. 21
Green Vegetable Bug .. 78, 207
Gypsophila .. 110, 244

H

Hedge Plants .. 190
Hedges .. 189
Helichrysum (see Straw Flower)—
  111, 244, 250
Heliotrope .. 111, 244
Hemerocallis .. 217
H.E.T.P. .. 209
Herbs .. 58, 234
Heuchera .. 112
Hippeastrum .. 157, 215
Hoeing .. 22
Hollyhock .. 112, 244
Honesty .. 112
Horse Radish .. 59
Hot Beds .. 34
Humus .. 18
Hunnemannia (see Mexican Poppy)—
  113, 244, 246
Hyacinth .. 153, 217, 244

I

Impatiens .. 113
Insect Pests .. 203
Ipomoea .. 225
Ipomopsis .. 113, 244
Iris .. 151, 217
Irish or Late Blight .. 212
Ixia .. 151, 217

J

Jacobean Lily (see Sprekelia).
Japanese Millet .. 22

K

Kochia .. 114, 244
Kohl Rabi .. 59, 234
Kniphofia .. 157, 217

L

Lachenalia .. 154
Larkspur .. 114, 244
Lathyrus .. 114, 245, 247
Lavender Shower (see Thalictrum).
Lawns—Chapter 10 .. 166-172
  Grading .. 166
  Soil .. 167
  Digging .. 167
  Manuring .. 167
  Liming .. 167
  Sowing .. 168
  What Grasses Will You Grow? 169, 170
  Roots and Turves .. 170
  General Care and Maintenance .. 170
  Mowing .. 170
  Watering .. 171
  Top Dressing .. 171
  Renovation .. 171
  Weed Control .. 172
  Pests and Diseases .. 172
Layout (Garden)—Chapter 2 .. 12-16
Leek .. 60, 234
Legumes .. 21
Leptosyne .. 115, 245
Lettuce .. 60, 234
Leucorcoryne .. 217
Lilium .. 154, 217
Lily of the Valley .. 155, 220
Lime Sulphur .. 210, 214
Liming .. 17
Linaria .. 115, 245
Linum .. 115
Liquid Manure .. 26-28
Lobelia .. 116, 245
Lucerne .. 21
Lupins .. 116, 245

M

Make Up of Plants .. 6
Mandevillea Sauveolens .. 253
Manuring & Fertilising—Chap. 4 .. 24-26
Marigold (African) .. 117, 245
Marigold (French) .. 117. 245, 246
Marrow .. 61, 76, 234
Mathiola .. 118, 246
Matricaria .. 118, 246
Mealy Bug .. 208
Melons, Preserving .. 62, 76, 235
Melons, Rock .. 61, 76, 235
Melons, Water .. 61, 76, 234
Mesembryanthemum .. 118, 192, 246
Mexican Poppy (see Hunnemannia).
Mignonette .. 119, 246
Mildew .. 78
Mildew, Downy .. 78
Mimulus .. 119, 246
Mina Lobata .. 225, 253
Montbretia .. 115, 221
Month by Month in the Garden—
  Chapter 15 .. 215-229
Morning Glory .. 253
Mulching .. 22
Muscari .. 217
Mushrooms .. 62, 63, 235
Mustard .. 22

N

Narcissus (see Daffodil) .. 149, 217
Nasturtium .. 119, 246
Necessary Tools .. 10-11
Nectarines .. 196
Nemesia .. 120, 246
Nemophila .. 120, 246
Nerine .. 155, 215
New Zealand Lupins .. 21
Nicotine Sulphate .. 209
Nierembergia .. 121, 246
Nigella .. 121, 246
Nursery Garden .. 14
Nuts .. 197, 198

O

Okra .. 63, 235
Onions .. 64, 235
Orchids .. 180
Ornamental Chili .. 240
Ornamental Shrubs .. 221
Ornamental Trees .. 221
Ornithogalum .. 217

P

Paeony .. 221
Painted Daisy .. 247
Palms .. 217
Pansy .. 121, 247
Parsley .. 65, 236
Parsnip .. 66, 236
Passion Vine .. 198, 253
Paths .. 14
Peaches .. 196
Pears .. 195

Page
**Peanut** .. 225
**Peas** .. 66, 236
Pelargonium .. 122, 247
Pentstemon .. 122, 192, 247
Pepper .. 225
Perennial Pea (see Lathyrus).
**Perennials (Meaning of)** .. 80
Permanent Glass Frames .. 197
Permanganate of Potash .. 214
Persimmons .. 198
**Pests, Diseases & Remedies—Chapter 14** .. 203-214
Petunia .. 123, 247
Phacelia .. 123
Phaseolus .. 225
Phlox .. 124, 247, 248
Phlox Perennial .. 192, 217
Pincushion (see Scabiosa).
Plans (Garden) .. 15
Plant Foods .. 24
Planting .. 144, 193
Platycodon .. 124
Plums .. 195
Poinciana Gillesii .. 125, 248
Polyanthus .. 125, 192, 248
Polygonatum .. 157, 219
Pomegranate .. 125
Poor Man's Orchid (see Schizanthus).
Popcorn .. 225
Poppy, Iceland .. 126, 248
Poppy, Queen .. 248
Poppy, Shirley .. 127, 248
Portulaca .. 127, 248
Potash .. 25
Potatoes .. 67, 236
Potato Onion .. 65, 217, 235
Pot Culture .. 145
Pot Plants .. 177
Primrose .. 128
Primula .. 128, 248, 249
Pruning .. 194
Pumpkin .. 69, 76, 236
Pumpkin Beetle .. 78, 205
Pyrethrum .. 128

R

Radish .. 69, 236
**Raising Seedlings—Chapter 5** .. 29 - 35
Ranunculus .. 129, 147, 155, 172, 249
Red Spraying Oils .. 210
Red Spider .. 78, 208
Rhodanthe .. 129, 249
Rhubarb .. 69, 236
Rockeries .. 14, 175
Rosella .. 70, 236
**Roses—Chapter 9** .. 160-165
Rotation of Crops .. 22, 23
Rudbeckia .. 129, 249
Rutherglen Bug .. 207
Root and Crown Rot .. 212

S

Salpiglossis .. 130, 249
Salsify .. 71, 236
Salvia .. 130, 249
Saponaria Vaccaria .. 131, 239, 249
Sap-sucking Insects .. 206
Scabiosa .. 131, 249
Scale Pests .. 208
Scarborough Lily (see Vallota).
Schizanthus .. 131, 248
Scilla .. 158, 215
Seed Beds .. 29
Seed Boxes .. 30
Selected Trees and Shrubs .. 187-188
Sesbania .. 132
Shallot .. 71, 192, 217, 236
Shasta Daisy .. 132, 249
Shelter .. 15
**Shrubs, Ornamental Trees & Climbers—Chapter 12** .. 183-192
  Selected Trees and Shrubs .. 187, 188
  Hedges .. 189
  Hedge Plants .. 190
  Climbing Plants .. 191
  Situation .. 144
**Slaters (see Woodlice).**
**Snails and Slugs** .. 205
**Snapdragons (see Antirrhinum).**
Snowflake .. 158
Snow on the Mountain .. 106, 243, 249
**Soil Building—Chapter 3** .. 17 - 23
Soil Preparation .. 37
Soil Requirements .. 144
Soils (Topsoil, Subsoil) .. 7
**Some Garden Highlights—Chapter 11** .. 173-182
Sparaxis .. 151, 158, 249
Spinach .. 71, 236
Spoonlily (see Alocasia).
Sprekelia .. 158
Squash .. 72, 76, 237
**Starting a Garden—Chapter 1** .. 6 - 11
Statice .. 132, 250
Sternbergia .. 215
Stock .. 133, 250
Strawberry .. 200
Strawflower (see Helichrysum).
Streptanthera .. 158
Streptocarpus .. 135
Sturt's Desert Pea .. 134, 250
Sulphate of Ammonia .. 25
Sunflower .. 135, 250
Superphosphate .. 25
Swan River Daisy .. 88, 239, 250
Swede Turnip .. 76, 237
Sweet Corn .. 72, 237
Sweet Peas .. 136, 251
Sweet Potato .. 72
Sweet Sultan .. 251
Sweet William .. 137, 251
Sweet Wivelsfield .. 137, 251

T

Tampala .. 73
Thalictrum .. 137, 244, 451
Thrip .. 207
Thunbergia .. 225, 253
Tigridia .. 158, 251
Tithonia .. 138, 251
Tomato .. 73, 237
Tomato Moth .. 206
Torenia .. 138, 251. 252
Transplanting .. 32
Tree Onion .. 65, 217, 235
Trenching .. 8, 9
Tritonia .. 151, 217
Tuberose .. 156, 219
Tulbaghia .. 158
Tulip .. 156, 217
Turnip .. 75, 237
Tweedia .. 229

U

Ursinia .. 138, 252

V

Vallota .. 156, 215
**Varieties for the Home Garden—Chapter 16** .. 230-253
  Vegetables .. 230, 237
  Flowers .. 238, 253
Vegetable Garden Site .. 14
**Vegetable Garden, The—Chapter 6,** 36 - 78
Vegetable Seed Sowings .. 40, 43
Velvet Beans .. 22
Venidium .. 138, 252
Verbena .. 138, 252
Vetches .. 21
Vine Crops .. 76
Viola .. 139, 252
Virginian Stock .. 139, 252
Viscaria .. 139, 252

W

Wall Gardens .. 176
Wallflower .. 140, 252
Waratah .. 140
Watsonia .. 158, 217
White Spraying Oils .. 210
Window Boxes .. 173
Wire Stems .. 213
Woodlice (Slaters) .. 206

Z

**Zephyranthes** .. 158, 220
Zinnia .. 141, 252, 253

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